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# Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY

REA TO MAKE FIRST TELEPHONE LOAN
IN FEBRUARY—See Page 28

JANUARY 28, 1950
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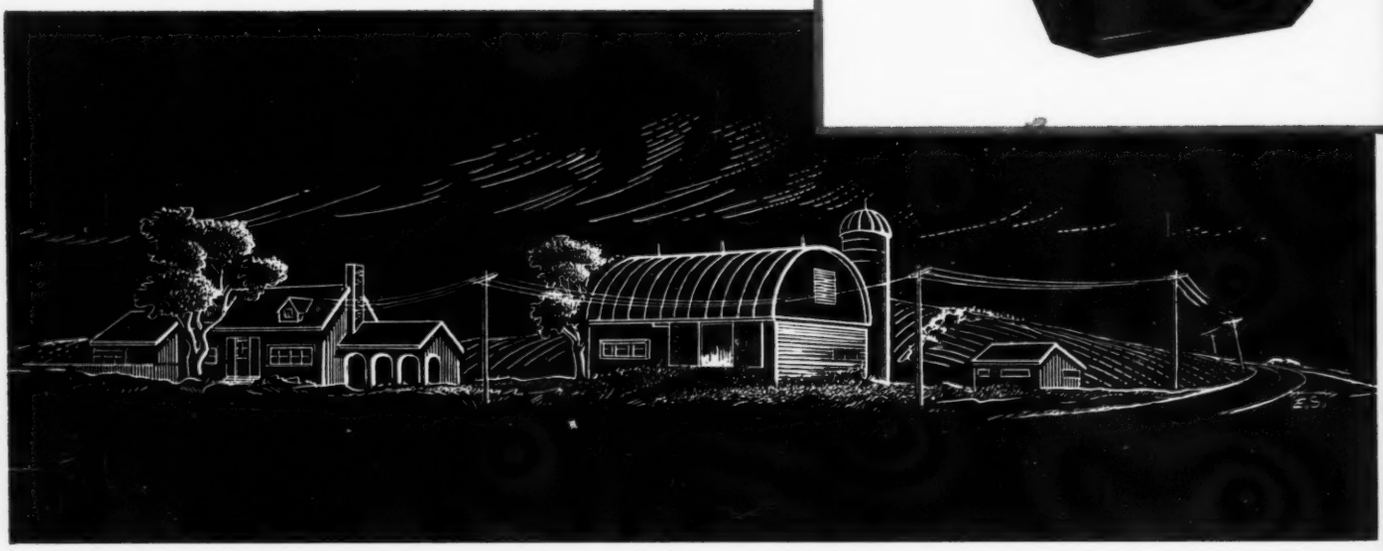
**Stromberg-Carlson No. 1248**
**Magneto Desk Telephone**—*Streamlined in desi*
*because rural homes today are as modern as their b*
*city neighbors. The housing, of die-cast zinc, is*
*unbreakable under ordinary use and even extraord*
*nary abuse. The Alnico generator, reduced in size, is*
*just as powerful as old, bulky types. And the genera*
*handle is in the natural position, for normal, easy u*

*For*
*"Outside Plant"*



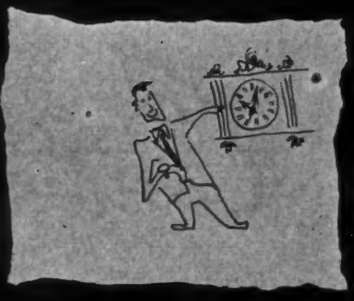
# EXPANSION AND

*There is Nothing*

## STROMBERG-CARLSO

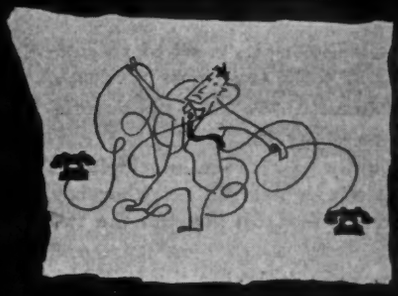
Factory, General Offices: Rochester 3, N. Y. Branch Offices: Atlanta 3, Chica

**SAVES MONEY** It is far less expensive to add a link (connecting circuit) or ten lines to the Leich Dial System than to any other dial switchboard of the same type. No factory installers are necessary. No revisions or additions in wiring are needed. The only expense is for the extra link or lines which are easily jacked-in by your own switchboard man.

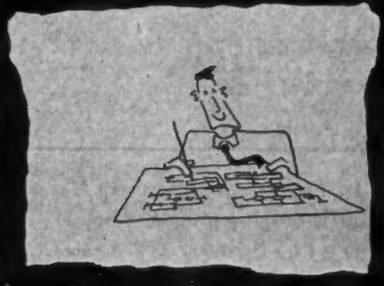


**SAVES TIME** Ten lines can be added to the Leich Dial System in ten minutes. A finder-connector link can be added in about two hours. These units are carried in stock at the factory, are shipped in individual cartons ready to be jacked-in. No soldering is necessary.

## you these practical advantages



**NO NEED TO TIE UP SERVICE IF TROUBLE DEVELOPS** Supposing a case of trouble develops on a link. All that's necessary to keep the board working to capacity is to slip out the link in trouble and jack-in a spare link. The one in trouble can then be repaired at your leisure.



**EASY TO REGROUP FOR CHANGING TRAFFIC CONDITIONS** The jack-in feature makes it a simple matter to slip out the switches and relay bar of a link. This link can then be jacked-in to a Leich Dial System in another exchange where increased traffic makes it necessary.

**LESS CHANCE FOR ERROR...LESS POSSIBILITY OF POOR CONNECTIONS** The links in a Leich Dial System are connected to all the lines in the multiple by stainless steel bars which are slid out when adding or removing links. These bars are inserted through Bakelite guide blocks, thus cannot be crossed or transposed. Poorly soldered joints are impossible because there are none.

**LEICH** **MANUFACTURERS OF TELEPHONES, SWITCHBOARDS AND RELATED APPARATUS SINCE 1907**

## FLASHES AND PLUGS

**HE WANTED OUT—NOT IN.** The hotel manager answered the telephone about 10 a.m. "When does the bar open?" a voice inquired.

"At 12 o'clock, sir," he answered.

Thirty minutes later the telephone rang again. "Shay there, when does the bar open?" the same voice asked. "At twelve o'clock," replied the manager. At 11 o'clock the telephone rang again. "Shay there, pal, when does the bar open?" the same voice asked. "At twelve o'clock," the manager snapped. Half an hour later the telephone rang again. "Shay there, old pal, can you tell me when this here bar (hic) opens?" the same voice asked again. "At twelve o'clock," the manager curtly answered, "and from the sound of your voice, I don't think I'll allow you in the bar when it does open."

"Tha's awright, I don't want in, I want out."

• • •

**TOY TELEPHONE TALE.** A toy telephone was credited recently with saving an Everett, Mass., family of three from possible death.

Awakened by the crackling of flames, one of the town's residents saw that the home next to his was ablaze.

Neither he nor the neighboring family had a regular telephone. However, a pair of battery-operated telephones the neighbor boy had received for Christmas had been hooked up between the two homes.

Grabbing the one in his dining room and ringing the bell with a hand crank the man managed to waken the family in the burning house and all three fled to safety.

• • •

**SUNDAY SLEEPERS SLUMBER NO MORE.** Anyone who wants to attend Sunday morning services at the Westwood Christian Church in Kansas City, Kan., can be sure he'll get there—no matter how heavy a sleeper he is.

All he has to do is leave a request with the church office, which telephones him between 7 and 9 a.m.—in plenty of time to get to church.

The pastor reports there is no charge for the service.

• • •

**THE TELL-TALE EVIDENCE.** Police in San Antonio, Tex., didn't have a bit of trouble identifying a pie truck thief recently.

A 16-year-old youth stole the truck and crashed into a telephone pole while fleeing. The boy took off afoot, but a motorcycle officer nabbed him after a one-block chase.

The officer said he knew the boy was the right one "because he was covered from head to foot with pies and cakes and had a big red cherry on top of his head."

• • •

**IT'S A JOKE, SON.** Anyone in Hamburg, Germany, who wants to be cheered up will soon be able to hear the latest joke simply by dialing a telephone number.

The joke will be told him by a telephone information service starting in February, which has just been approved by the city's postal authorities.

Besides jokes the service will provide soccer results, exchange rates, entertainment programs and timetables.


Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY

January 28, 1950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# ABC of the Telephone

By FRANK E. LEE

PART XLVII. Rectifiers—Section 2. The preceding article appeared in the Dec. 3, 1949, issue, p. 28.

GENERALLY speaking, rectifiers are relatively simple in construction details and do not have any moving parts. As mentioned in the previous installment on this topic, the absence of moving parts tends to make the operation of a rectifier a little difficult to comprehend. Two questions commonly asked in this respect were mentioned in the last installment. These were, namely:

(1) How can the rectifier compensate for variations in power line voltage?

(2) How can the dc output load control the ac input?

Actually, there are several methods of accomplishing each of these results. As is usually the case with most electrical circuits, an understanding of one circuit assists in the study of the characteristics of a similar circuit. For this reason, a typical single phase rectifier circuit has been selected as a subject for discussion to shed some light on both of the above questions.

### Circuit Description of a Typical Single-Phase Rectifier

A simplified circuit diagram of a typical single-phase rectifier is shown in *Fig. 1*. The voltage regulation of this single-phase rectifier is accomplished by a unique combination of magnetic saturation and rectification principles. Primarily this rectifier consists of a leakage reactance transformer having a saturable secondary which is energized from the power line, and a three-phase rectifier which is energized from the transformer. As a matter of explanation, reactance is the influence of a coil of wire upon an alternating current passing through it. The tendency is to choke or diminish the current. Another factor involved in combination of electrical components used in this rectifier is leakage flux. Leakage flux is lines of magnetic force which do not follow a useful path. An example is the lines of force which fail to pass through both primary and secondary windings of a transformer. Thus, leakage reactance is the reactance due to leakage flux.

In the rectifier circuit under discussion, the leakage reactance transformer has an ac input winding "A" and a secondary winding "B". The three-phase rectifier is connected both to the secondary winding "F" and to the winding "E" which is wound next to the ac input winding on the primary side of the transformer. The leakage reactance characteristic between the primary and secondary sides of the transformer is provided by the magnetic shunt "D". The secondary winding "F" is provided with a step-up arrangement for feeding the condenser "C" with an increased voltage.

### Compensating for Variations in Line Voltage

When single-phase ac input voltage is applied to the input windings, both the primary and secondary sides of the transformer are magnetized. The voltage induced in the secondary winding "F" appears across the condenser "C" and causes a capacitive or leading current to flow. The inductive leakage reactance provided by the shunt "D" produces a voltage climb in the secondary winding "F" as a result of capacitive current therein. The secondary voltage increases as a result of this voltage climb until a saturated condition is established in the secondary side "B" of the transformer. The transformer is constructed with a greater cross sectional area in the primary side "A" than in the secondary side "B" so that the secondary may be operated at saturation while the primary is operating at normal flux density. With the saturated condition established in the transformer, the secondary voltage is more or less independent of the ac input voltage, and ac input voltage variations within the normal operating range do not appear as variations in the dc output of the rectifier "R".

### Voltage Control and Polyphase Rectification

With an open circuit on the dc output terminals, the voltage across the secondary winding "F" is practically in phase with the voltage across the primary windings. The rectifier, although it is a three-phase rectifier, therefore operates at light loads as a single-phase rectifier, inasmuch as the voltage across winding "F" is in essentially the same phase as the voltage across winding "E". As a single-phase rectifier, the dc output voltage of the rectifier is dependent upon the average value of the applied ac voltage. When a dc load is connected across the dc output terminals, the load drawn from the secondary winding "F" of the transformer acts to displace the phase of the secondary voltage from that of the primary voltage, because of the leakage shunt "D". As the phase of the voltage across winding "F" becomes displaced from that of the voltage across winding "E", the rectifier begins to produce polyphase rectification. (Polyphase rectification is rectifying a current having or producing two or more phases.)

With polyphase rectification, the dc output voltage may approach the peak value of the applied ac voltage to the rectifier rather than the average value and consequently a considerable in-

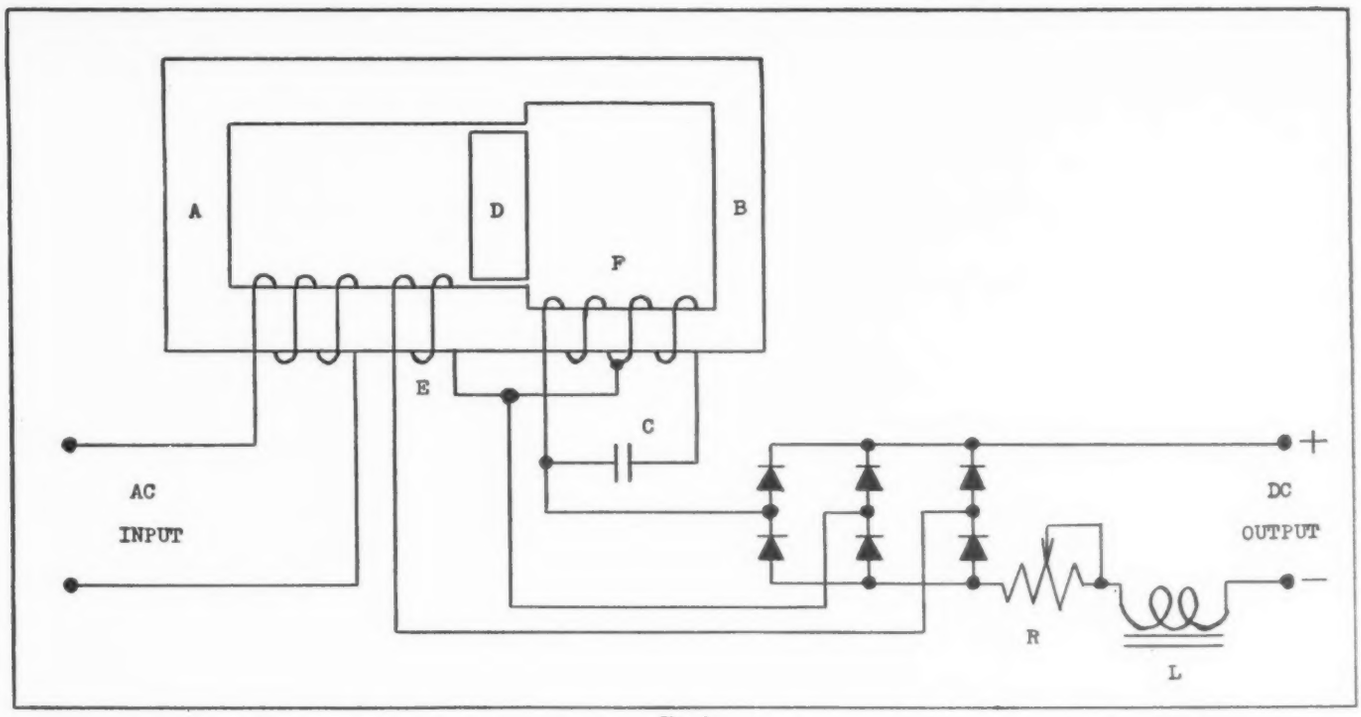


Fig. 1

crease in voltage can be achieved by changing from single-phase rectification to polyphase rectification. The change from single-phase rectification at light loads to polyphase rectification at heavier loads, as achieved in this rectifier, produces an increase in voltage which is just sufficient to compensate for the drop in voltage occurring in the transformer windings, the rectifier elements, and the remainder of the circuit.

As a result of this combination, the dc voltage appearing across the dc output terminals of the rectifier remains constant regardless of ac input voltage variations within the normal range and in spite of variations in load between a specified minimum load and the rated load of the rectifier.

**Filter**

As a result of the introduction of polyphase rectification at heavier loads, filter inductance "L", which is used to keep noise out of the telephone battery, may be of a considerably smaller size than would be required for a single-phase rectifier. The inductance "L" usually is more than adequate in size to keep charger noises from appearing across the telephone battery. The battery itself, of course, contributes to the filtering action and care should be exercised to make certain that the rectifier leads are run directly to the battery and that there is no appreciable resistance common to both the charge and discharge circuit, because any such resistance will introduce noise into the talking circuits.

**Aging Resistor**

An adjustable resistor "R" is connected in series with the dc output leads and is used to compensate for aging in the rectifiers. The resistor "R" is set at the factory so that the combination of the rectifier and resistor "R" includes as much total resistance with a new rectifier as the rectifier will have when fully aged. It is therefore possible by shorting out "R" to provide the same output voltage regulation characteristics with a fully aged rectifier as are obtained with a new rectifier together with the resistor "R". The resistor "R" also may be used to compensate for a slight amount of line resistance in the leads between the rectifier and the battery, but if too much of "R" is shorted out to compensate for resistance in the charging leads, there may not be sufficient resistance left in "R" to adjust for the full aging of the rectifier.

The aging adjustment used in this single-phase rectifier makes it possible to maintain uniform voltage regulation characteristics throughout the life of the rectifier and at the same time to maintain the same efficiency with a fully aged rectifier stack as is obtained with a new machine as shipped from the factory.

For proper operation of the rectifier

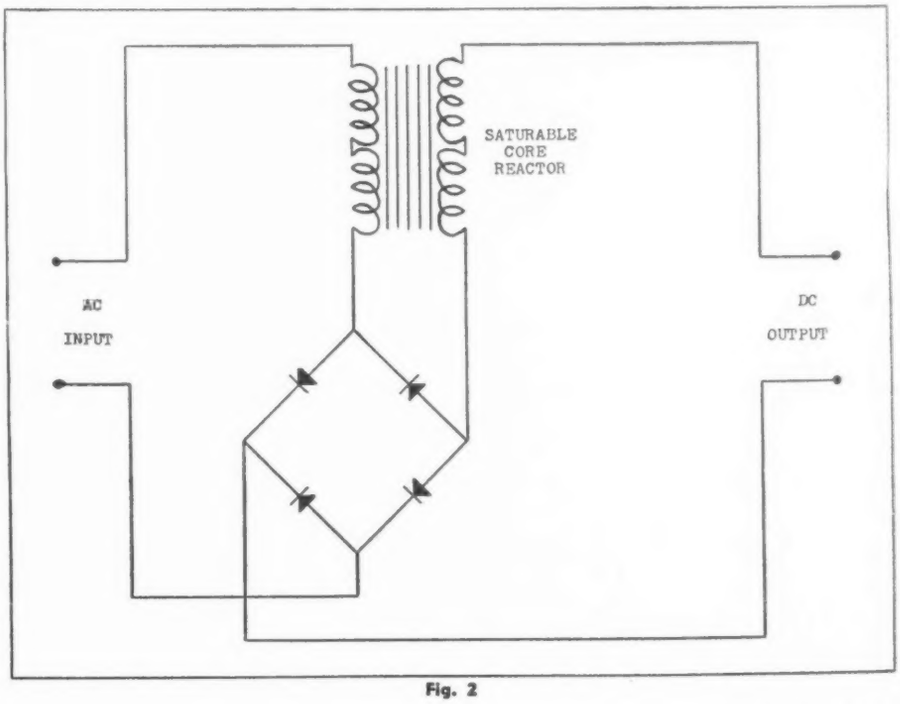


Fig. 2

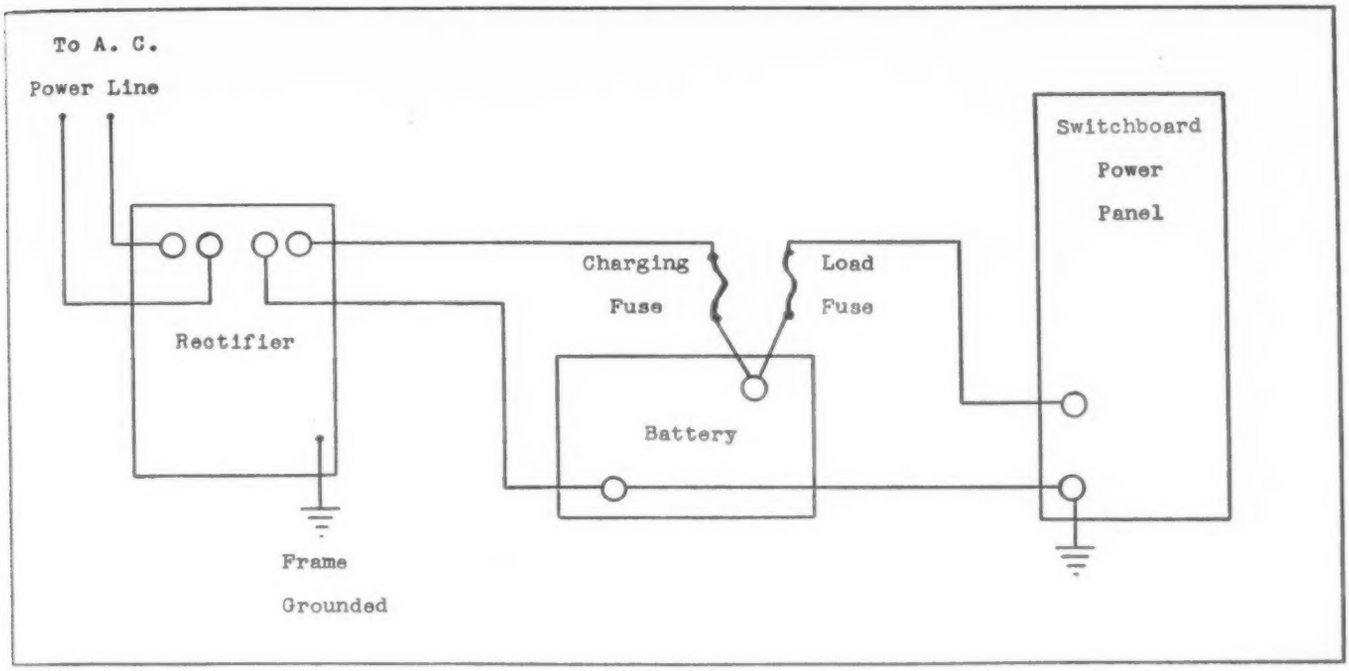


Fig. 3

the aging resistor "R" should be adjusted so that the voltage measured at the rectifier terminals is the same at full load as it is at a 10 per cent load. When adjusted in this manner, the rectifier follows the load very accurately and rapidly, and provides true full-floating operation. Improper adjustment of "R" prevents the rectifier from properly following the load.

If "R" is adjusted with too much resistance, the voltage falls with increasing load and the charger lags in following the load, permitting some power to be drawn from the battery before the charger picks up the load. If "R" is adjusted with too little resistance, the voltage rises with increasing load, and an unstable condition results. The charger then delivers too much current to the battery for a few moments until the battery voltage rises to meet the increased voltage of the charger, at which point the charger drops the load and allows the battery to carry the load. As soon as the battery voltage drops to the lower voltage delivered by the charger at light load, the charger again picks up the load, but again delivers too much current. This condition can readily be detected with the charging ammeter, because the ammeter needle oscillates back and forth continuously instead of accurately following the load current variations.

The resistance of the rectifier stacks decreases with increasing room temperature, and when the aging resistor "R" has been properly adjusted on a cold day, it will occasionally require readjustment when the temperature increases.

Generally, the rectifier stacks provided in most rectifiers are all capable of carrying the overload continuously without damage. Because of this conservative design, the aging, which is experienced in the rectifier stacks when operated at normal rated load, is minimized and frequent adjustment of the aging resistor "R" is not necessary. Generally, in the first year of

*(Please turn to page 31)*

| Rectifier Ratings | 25 ft. | 31 ft. | 40 ft. | 50 ft. | 63 ft. | 80 ft. | 100 ft. | 126 ft. | 160 ft. |
|---|---|---|---|---|---|---|---|---|---|
| 1.5A. 50V. | 21 ga. | 20 ga. | 19 ga. | 18 ga. | 17 ga. | 16 ga. | 15 ga. | 14 ga. | 13 ga. |
| 1.0A. 25V. | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 |
| 3.0A. 50V. | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 |
| 6.0A. 50V. | | | | | | | | | |
| 3.0A. 25V. | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 |
| 12A. 50V. | | | | | | | | | |
| 6A. 25V. | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 |
| 24A. 50V. | | | | | | | | | |
| 12A. 25V. | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 50A. 50V. | | | | | | | | | |
| 24A. 25V. | 6 | 5 | 4 | 3 | 2 | 1 | 0 | 00 | 000 |
| 75A. 50V. | 4 | 3 | 2 | 1 | 0 | 00 | 000 | 0000 | 250 MCM |
| 100A. 50V. | | | | | | | | | |
| 50A. 25V. | 3 | 2 | 1 | 0 | 00 | 000 | 0000 | 250 MCM | 300 MCM |
| 150A. 50V. | * | 0 | 00 | 000 | 0000 | 250 MCM | 350 MCM | 400 MCM | 500 MCM |
| 200A. 50V. | * | * | 000 | 0000 | 250 MCM | 350 MCM | 400 MCM | 500 MCM | 600 MCM |
| 100A. 25V. | 0 | 00 | 000 | 0000 | 250 MCM | 350 MCM | 400 MCM | 500 MCM | 600 MCM |
| 150A. 25V. | 000 | 0000 | 250 MCM | 350 MCM | 400 MCM | 500 MCM | 600 MCM | 800 MCM | 1000 MCM |
| 200A. 25V. | 0000 | 250 MCM | 350 MCM | 400 MCM | 500 MCM | 600 MCM | 800 MCM | 1000 MCM | |

*Wire gauge determined by current carrying capacity of wire.

NOTE I. Loop length is the sum of the lengths of the positive and negative charging leads between the rectifier and the battery. Wire sizes given above are based on 1 per cent drop at full load, and represent minimum values; heavier wire will give better regulation.

NOTE II. Wire sizes designated with letters MCM are read as follows: 400 MCM means 400,000 circular mils.

Table I. Wire gauges for stated loop lengths.

# IN THE NATION'S CAPITAL

BY FRANCIS X. WELCH
WASHINGTON EDITOR

**Michigan commission adds fuel to controversy over "fair value" vs. "original cost" in establishing a rate base. . . . Telephone strike possible in spring. . . . Clear-cut national wire-tapping policy needed.**

**Rate Case Repercussions**

A RECENT decision of the Michigan Public Service Commission has added fresh fuel to the age-old controversy "fair value" *vs.* "original cost" in constructing the utility rate base. Federal regulatory officials are outraged over this two-to-one ruling which expressly recognizes present fair value in fixing the rates of the Consumers Power Co. To hear these federal officials talk—especially those connected with the Federal Power Commission (FPC)—one would think that the Michigan commission had performed some rebellious act comparable to the South Carolina bombardment of Fort Sumter just before the outbreak of the Civil War.

To get to the point immediately, what the Michigan Commission did was to authorize a 6 per cent increase in the electric rate of the Consumers Power Co. The Michigan commission majority fixed a rate base of $330,000,000 as against a claimed "reproduction cost" basis of $412,721,000 urged by the company and an "original cost" basis of $247,950,000 favored in the dissenting order of Chairman McCarthy. The majority opinion observed that the nation is "experiencing the most violent inflationary period of our national life," and that it was "incredible that fair value measured in 1949 dollars" would not be in excess of the original cost of property constructed and acquired over the last 35 years. The increase, amounting to $4,180,000 a year, was based on a 5.7 per cent return.

The Michigan commission majority did not take its own decision lightly. It realized that it was making a definite break with the original cost pattern federal officials have been trying to ram down state commissions' throats for more than a decade. The majority decision stated:

"In this proceeding the matter of the proper approach to a rate base has been vigorously challenged to the attention of the commission. We have been urged in most forceful language, both in oral argument and in the brief filed by the company, to pay heed to the statutes and decisions of this state; and, in compliance therewith, to determine and adopt a rate base which is the present fair value of the property of the company used and useful in its business as a public utility.

"Because of apparent confusion upon this subject in this as well as in other rate cases before this commission, and because of the expressed belief on the part of even members of the commission staff that this commission is committed to the doctrine of original cost or prudent investment, we believe that it is high time that this matter should be decided and announced for once and for all."

Recently in a talk before the New York Society of Security Analysts, Harry Miller, president of the National Association of Railroad & Utility Commissioners and member of the Ohio Public Utilities Commission, asserted that the adoption of a sound economic policy for public utilities is one of the more pressing problems facing the utility commissions.

In the Consumers Power decision, the Michigan commission stated:

"The evidence shows that the facilities and property of this utility have been constructed and acquired over a period upward of 35 years and it is incredible that fair value measured in 1949 dollars is not in excess of the original cost of construction or acquisition. If it is worth anything more than its original cost, it necessarily follows that in determining its present worth, we are departing from original cost as the sole criterion of value."

* * *

In the same field of telephone rate cases, a proceeding before the Maryland Public Service Commission is also providing some interesting developments. This is the commission proceeding on the petition of the Chesapeake & Potomac Telephone Co. for a $4,000,000 rate increase.

Only last week (week of Jan. 15), the commission turned down and refused to consider, as evidence, a schedule of comparative rates. This took the form of a list of telephone rates charged in various cities of the United States. The technique of such evidence is one promoted in the field of electric rates for many years by the Federal Power Commission. The FPC periodically puts out a list of electric utility rates in various cities of the country grouped according to classification.

The inevitable reaction to this sort of publicity is that newspapers and wide-awake citizens in cities where the rates are relatively higher began to demand that they be lowered. When this happens, of course, that particular utility moves up ahead in the list towards the low-rate category — but at the same time it leaves some other city in the vulnerable rear end of high price rate classification. Such comparative rate publicity results in an endless circle of agitation which has nothing to do with the economic merits.

It was for this reason that the chairman of the Maryland Public Service

### TRUMAN RECOMMENDS CUT IN EXCISE TAXES

**President Truman, in a special message to Congress on Jan. 23, recommended a reduction in excise taxes on long distance telephone and telegraph communications as well as on other types of services and so-called luxury items. (The President did not mention the excise tax on local exchange service.)**

**He did not recommend any specific amount that these taxes should be reduced, but said the reduction should be only to the extent that the resulting loss in revenue to the government is replaced by increases in other types of taxes.**

**(See "REA To Make First Telephone Loan" on page 28.)**

Commission, John H. Hessey, decided that there was no point in considering comparative telephone rates, as such. After all, in a list of 50 or 100 or 200 cities, *some* city has to be first and some city has to be last. Arbitrary pressure based on the fact that a certain city happens to be last, or well down on the list, does not allow for the strong possibility that there may be local reasons for relatively higher rates. It may be a matter of local taxation or local wage policy or some other factor affecting the company's operating costs.

* * *

Another interesting development in the Maryland telephone rate case was the decision to throw out the testimony of a volunteer "expert." There is no need to mention names, here, except to say that a certain economist attempted to present expert testimony in opposition to the telephone company's rate increases "as a subscriber and citizen." The witness was a former Harvard economics professor who once wrote a book highly critical of the Bell System. Anyone who had ever read this book would be easily persuaded to the view that the author would be unlikely to develop a particularly objective point of view in any new controversy involving Bell System policies.

But personal predilections to one side, Chairman Hessey threw out the witness' testimony on the plain and simple basis that "experts" ought to qualify as such before testifying in rate cases. The whole theory of so-called "expert" testimony is that of a disinterested authority — one might almost say a scientist—who brings to the regulatory proceeding, the benefit of a rich background of experience. It is like the chemist who is called into the murder trial to explain to a jury how a certain poison would act under certain conditions, or — to choose other comparisons — the handwriting expert, the gun and rifle expert, the fingerprint expert, the psychiatrist, and so on down the list of the various arts and sciences and trade specialties.

The whole concept is one of a disinterested and uncolored fountain of knowledge which may or may not shed some new streams of understanding on a particular situation. It is for that reason that a so-called "expert," who has made a veritable career of criticizing utility management policies, would seem to be, *ipso facto*, disqualified as a disinterested witness of authority. And that would seem to be particularly true when the "expert" shows up at a rate hearing in the guise of a "subscriber."

### Bell Strike in the Spring?

Judging by a pamphlet recently distributed by the national headquarters of the CIO Communications Workers of America, possibility of a telephone strike in March or April certainly can not be ruled out by practical people in the industry. This pamphlet, entitled "Background in the 1950 Telephone Wage Dispute," clearly indicates the sentiment within the CIO leadership to force a showdown on another round of wage increases in the Bell System. National headquarters of the CWA, which is in Washington, D. C., is buzzing with strike talk and there is an air of expectancy which points towards something happening early next spring.

One very good clue in the direction of a possible telephone strike, pressure for which is being built up quietly, was the recent decision by the CWA national office to order employes of Southwestern Bell Telephone Co. in St. Louis to postpone their strike indefinitely.

The Southwestern Bell strike had been scheduled to begin Jan. 16 following an armistice invoked by the governor of Missouri under the state public utility anti-strike law. But the national CWA did not want local or regional unions jumping the gun on strike action which might embarrass or prejudice a national strike pattern. Already 100,000 workers (out of 300,000 claimed to be represented by CWA in the Bell System) are in a "striking position" as the result of contracts in various stages of negotiation. Between now and Mar. 1, the balance of CWA membership will come into the possible strike picture, as the result of "reopening provisions" (on wage disputes) being called into play.

About the only Bell telephone service which would definitely not be affected by a national strike call would be in Washington, Oregon, Idaho, Michigan, and parts of Ohio. This is because of local contract commitments between the companies in those states and CWA. Union officials feel that they are in a better position to swing a strike this spring than they were in April, 1947, when the unsuccessful strike was broken, chiefly because of Bell System maintenance of local exchange service with dial equipment.

This time, union leaders say, the walkout would include equipment and installation men as well as operators. Again, CWA now has the benefit of powerful CIO cooperation (including pickets) which was not the case in 1947. Industry officials, however, believe that if wage bargaining should break down, and a strike is called, local dial service and a reduced toll service could be kept going by supervisory employes. CWA President Beirne was slated to go on the air over a national radio hook-up (ABC) Jan. 25.

Just what the public reaction would be to a national telephone strike is an unknown factor worrying CWA. It is a fact that definite public resentment exists over the coal strike. This is already building up pressure in Congress. A few union officials feel that a telephone strike might be just the extra pressure needed to have Congress pass legislation to make unions subject to anti-trust laws. Senator Robertson (D., Va.) will soon introduce such a measure — assured of full hearing by the Senate Judiciary Committee. In the House, a similar bill (H. R. 6681), by Representative Wilson (D., Tex.), is in the hopper.

There is also some increasing Congressional sentiment (as yet in the minority) to put some teeth in the Taft-Hartley Act to crack down on national bargaining as a monopolistic union abuse. A telephone strike might be just the thing to set off some firecrackers in that explosive field.

### The Latest on Wire Tapping

It was back in 1928 that the late Justice Holmes made his famous comment in a supreme court opinion that tapping telephone wires "is a dirty business." Most thoughtful people have been inclined to agree with this. And it explains the background of the congressional action in 1934 whereby Section 605 was written into the Communications Act. That section states that "no person not being authorized by the sender shall intercept any communication and divulge or publish . . . such intercepted communication. . . . "

Off hand, that would seem to be a pretty definite ban on telephone wire tapping. But the Federal Bureau of

*(Please turn to page 30)*

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# THE PLANT MAN'S *note book*

BY RAY BLAIN TECHNICAL EDITOR

SMALL, light-weight army Signal Corps equipment, which can be easily carried by men and withstand extremes of climate, is being designed to provide fast, effective communications networks for combat troops in the field.

"Miniaturization" is the word used to describe the task of developing materiel which can be handled with greater facility and less personnel than similar equipment used during World War II. The new products will also provide added protection for soldiers working under combat conditions. In the past, Signal Corps troops have had to work on occasion with equipment which was both cumbersome and conspicuous.

A new type of switchboard has been developed that may be used to terminate both wire and radio circuits. Its weight of 22 pounds compared with a 72-pound switchboard currently in use. The new board takes up four-tenths of a cubic foot as compared with two cubic feet for the older type. Three switchboards, each with a capacity of 12 lines, can be connected to provide switching for 36 circuits.

During World War II, field wire used by the army weighed 132 pounds per mile. Recent research has resulted in development of wire which weighs only 48 pounds per mile. Approximately 3,928,000 miles of field wire was produced for the Signal Corps between Dec. 7, 1941, and V-J Day. The new lighter weight wire has a wet weather talking range of 12 miles, as compared with a 10-mile range of field wire currently in use.

• • •

It has been said: "You don't get ulcers from what you eat. You get them from what's eating you."

• • •

The *Southwestern Telephone News* recently published an interesting article on the history of the headset.

Back in 1880, the "Gilliland Harness" was a six-and-a-half pound transmitter and receiver balanced on a shoulder harness. The yoke was strapped in back to a leather belt around the operator's waist. The present headset, with horn and neckstrap eliminated, is all in one piece and weighs five and six-tenths ounces. The transmitter is attached to the receiver by an adjustable stainless steel arm. Another special feature is that the operator cannot talk away from it. No matter how she turns her head, the transmitter follows her lips.

• • •

A new type of telephone handset holder that leaves both hands free while telephoning has been perfected by an inventor at Hartford, Conn.

It is claimed that this device may be used with any type of handset and does not attach directly to the telephone. The set rests on a special base to which an assembly post is fitted. At the top of this post, there is a swinging arm for holding the handset adjustable to the height of the user. A button or switch on the assembly post is operated to cut the telephone into the circuit.

• • •

We are informed that A. J. Bohnsack of Germantown, N. J., has recently perfected an arrangement whereby lamp supervision is provided when kick coils are used to convert magneto lines to common battery operation on a local battery switchboard. It is said that this feature is provided by adding a low resistance relay and condensers to the battery supply circuit.

• • •

Several years ago, John Bonert, cable splicer in New York City, retired from active service. At that time, he claimed that he was going to build a manhole in his backyard and every morning he was going out, remove the cover, and yell "hooey" into it. He didn't, however, but instead wrote a book on cable splicing and lead work and then went into the motor boat business at East Rockaway, N. Y. He and his son, he reports, are doing well in this business.

We believe that it is good for a retired telephone man to go into another line of endeavor as it seems to give him a new interest in life.

John states that he continues to read TELEPHONY each week and that it is good to keep in touch with the industry even though he is not active in it any more.

We wish we could hear from a greater number of retired telephone men.

• • •

'Way back in the telephone business, it was common practice to obtain our transportation at the local livery stable. The writer remembers well that when working on a toll construction gang, we always travelled to and from the job half on our own time and half on the company's. We did not get overtime pay in those days and we had never heard of portal-to-portal pay.

It would be ridiculous to assume that the old horse drawn vehicles could provide transportation to cover the present-day far flung telephone system. To handle present telephone transportation, large fleets of motor vehicles are required. These fleets are housed and maintained in large garages which usually serve also as a storeroom for installation and construction materials. Travel time to the job usually consumes only a short period of time, but loading all trucks and dispatching them without a serious loss of time requires careful planning. We hope to have a story on this interesting subject at a later date.

• • •

We believe that it is a good plan to always keep our ambitions just out of reach, and never let ourselves catch up with them.

• • •

According to *Reader's Digest*, the Greyhound bus line, after experiment-

ing with two-way radio telephones on 300 buses in the midwest, has decided to install the system on all of its vehicles. This radio warns dispatchers of delays, capacity loads and bad road conditions. Further, as a by-product, it helps in reporting accidents and reckless motorists to the state police.

• • •

Radio amateurs who operate telephone transmitters have improvised some means of connecting their radio circuits directly to commercial telephone systems.

Recently, one of these amateurs in San Antonio, Tex., contacted another ham here in Washington, D. C., and had him call a friend of the writer's by telephone. He then talked with the Texas ham for about 15 minutes and states that the conversation was quite clear and understandable. They did not have simultaneous two-way conversation, but one talked while the other listened and then the hook-up was reversed.

If any of our readers have information as to how these connections are being established, we would be pleased to learn the particulars.

# PLANT MAN'S QUIZ

**Q. How may we protect drop wire when trouble is caused by the rubbing of large limbs in locations where valuable trees cannot be trimmed?**

A. We suggest that you try the use of plastic tree guards which may now be obtained in three foot lengths. These guards are installed by spiralling over the wire, are light in weight and do not retain moisture.

• • •

**Q. Would it be possible to sharpen poles and drive them into the ground with a machine of some type for rural line use?**

A. We would not venture to claim that such an arrangement is impossible, but we would not consider it practicable. A machine capable of performing this task would undoubtedly be large, cumbersome and expensive. It would also be difficult to maneuver to pole locations on the job.

It is our opinion that a power operated earth auger would prove far more satisfactory and certainly less expensive for the setting of rural line poles.

• • •

**Q. What is considered the proper amount of slack to leave in main frame jumper wire?**

A. In general, three or four inches of slack should be left in all new jumpers. When a jumper is transferred, this slack should be utilized, but it should not in any case be pulled taut.

Slack in jumpers should be dressed back neatly from the terminal strips. In no case should jumpers be stretched for this may cause trouble. While it is always possible to stretch any jumper a few inches, by so doing, the insulation of the wire or terminals may be damaged.

• • •

**Q. How may defects be detected in linemen's belts and safety straps?**

A. These belts should be inspected at regular intervals for the following defects:

(1) Cuts or cracks in the leather.
(2) Reduced thickness of the leather because of wear.
(3) Broken threads in the sewing.
(4) Loose rivets.
(5) Improper operation of the snap hook keeper.
(6) Holes enlarged by the tongue of the buckle.
(7) Noticeable wear of the leather directly under the roller of the safety strap buckle.
(8) Excessive play between the sleeve and pin where the snap hooks are attached to the safety strap, indicating abnormal wear of the pin.
(9) Hard spots caused by heat, which tend to make the leather brittle.

Any and all of the above defects should be considered serious when found. If they cannot be properly corrected, the belt should be replaced.

• • •

**Q. We note that lead sleeves used in cable splicing are of varying length, the longer ones being used on the larger sizes of cable. Why would it not be possible to make these sleeves all equal length regardless of size?**

A. This could be done, but it would not prove economical and it is doubtful that anything could be gained by such an arrangement. A sleeve 15 in. in length is required to splice up to a 76 pair, 22 gauge and a 22-in. for a 900 pair. There would be no advantage, as we see it, in using a 22-in. sleeve on the 76 pair when the 15-in. is adequate.

• • •

**Q. Is the temperature of wiping metal critical for good cable splicing and how may this temperature best be determined?**

A. The need of temperature control of wiping metal is most important if good cable joints are to be made. When under-heated metal is used, joints are likely to be porous and when the metal is overheated, they are likely to crystallize. Overheating, also, generally burns the tin content of the metal.

In the old days, splicers usually tested the temperature of the heated metal by simply dipping a piece of paper into it and noting the extent of its discoloration. This test was far from accurate and, as a consequence, many defective splices resulted.

The modern arrangement of testing the temperature of wiping metal is to make use of a Dillion Temperometer. When the metal has been heated to a temperature of 760 degrees F., both ends of a splice can generally be wiped from a large pot of metal. When a smaller cable is being spliced, sometimes a temperature of 700 degrees F. may suffice.

Splicers usually have their own opinion as to what temperature of metal to use on various sizes of cables.

• • •

**Q. We are planning a rather large cable construction job and are debating whether or not we should purchase a cable reel trailer or use the cable jacks and bar which we have available. In your opinion, would the cost of a cable reel trailer be justified for this one construction job?**

A. There is no doubt but that a cable reel trailer permits the handling of heavy reels more expeditiously and with greater safety than with jacks and a bar. While there is some doubt that a trailer purchase would be justified for a single construction, it would certainly prove desirable, in any medium sized exchange, if you have a recurring need for it. On the other hand, if you only have a one time construction job, it will probably prove more economical to hire a contractor who will have the necessary equipment available, including a cable reel trailer.

• • •

**Q. What is the meaning of the term "exposed cable plant?"**

A. This term usually refers to aerial cable plant which may be subjected to possible contact with electrical circuits having potentials of over 250 volts.

# THE OPERATOR'S Corner

BY
MAYME WORKMAN
TRAFFIC
EDITOR

ALL service rendered to telephone customers is important, local, toll, information, and other supplementary classes. Toll operating being the most complex, this subject is covered frequently and at length. However, this does not minimize the importance of good local service. Many customers are infrequent toll users, but all use local service frequently. Therefore, the customer's opinion of that service rendered depends, to a great extent, upon its quality. Switchboard operators at local positions are, therefore, moulding the opinion of the customer each time they answer a local call, establish a connection, ring a number, disconnect, answer a recall, etc.

To render service that is pleasing to the customer, the operator must keep in mind the three essentials to good service, namely, courtesy, accuracy and speed. Courtesy is placed first, and for an important reason. If courtesy is lacking, other essentials to good service are of little consequence. Courtesy creates a pleasant reaction on the part of the customer. It encourages his use of the service and smooths out many difficulties encountered in handling the call.

It is good to know we are once more in a position to advocate the use of telephone service and to encourage the expansion of telephone facilities, such as, installation of extension telephones, up-grading of service, etc.

To assure greater accuracy, the operator must listen attentively while an order is being received. Inattention frequently results in ringing a wrong number. Failure to repeat a doubtful order and to allow sufficient time for the customer's correction, if necessary, will also result in ringing a wrong number. Careless ringing, particularly where code rings are involved, also affects the accuracy of the service.

Inaccuracy leaves an unfavorable impression upon the customer placing the call and also upon the person called in error. We are living in a busy era and customers resent delays. They also resent being disturbed by being called in error, especially if the call occurs late at night or in the early morning hours. Don't take a chance. *Be sure.* If the customer's request is not clearly understood, ask him to repeat it.

Failure to take a proper busy test, by holding the plug in a slanting downward position, touching the tip of the plug on the rim of the jack, may result in establishing a connection to a busy line. Such errors cannot be taken lightly as they may result in a serious service complaint on the part of the customers involved. The proper method of testing a line is simple and this practice will avoid service errors.

Pleasing, accurate service, combined with speed, will produce the quality of service the telephone company and its employes desire to render.

Speed is developed by smooth operating, making every move count, with no wasted effort. Slow answers to line signals are annoying to customers and often result in service complaints. Unfortunately, a delay of seconds seems like minutes to a customer who desires to place a call. Answering signals in the order of their appearance will avoid slow answers. The operator who gives preference to signals within easy reach may be, and frequently is, responsible for a slow answer.

One of the most exasperating experiences, from the customer's viewpoint, is failure to receive a prompt answer to a recall. He may be in distress because he reached a wrong number, or, having terminated his conversation, he desires to place another call. Slow answers to recalls are exasperating to the customer and they are detrimental to rendering pleasing, accurate, prompt service.

"Service that sparkles with individual attention" is pleasing to the customer and makes the task of serving him a pleasant one. The operator has many opportunities to convey to customers her willingness to please. This is particularly true in a small community where the operator is conversant with her customer's needs. For example, she is aware that a certain elderly lady invariably misplaces her glasses, making it necessary to furnish the desired number, or to refer the customer to Information. There are two ways in which this situation can be approached: Being cold, indifferent, and using the prescribed phrases in such a manner and in a tone of voice which leaves the customer thinking, "I'm just an old nuisance and perhaps I shouldn't use the telephone" or, being kind and patient, adhering to the prescribed operating practice, but conveying by tone of voice and manner, a sympathetic understanding of the customer's difficulty. If the latter course is followed, the customer will appreciate it and surely the operator will have a better feeling and will be in a happier frame of mind because of her tolerance.

Life is made up of little things—a smile, a friendly gesture, a kindly deed, and these make life more pleasant for the recipient and the giver. You may have a customer in your exchange with a physical handicap, such as, impaired hearing, requiring an additional ring or two or a prolonged ring. It is true, the Operating Practice does not require the operator to render this additional service, but you may be sure the company will be repaid by the operator's kindly deed when the customer comes to the central office to pay her bill. Her attitude will display her satisfaction with the service she receives from the operators in the central office.

Local service is the telephone company's barometer, the pulse, as it were, of the service rendered in the central office. If the pulse is steady, you may be sure the operators are rendering the kind of service that is pleasing and satisfying. On the contrary, if the pulse rises and falls, there is indication that trouble is in the offing. It may not come to a head immediately, but eventually it will reach the breaking point, and then everyone will be in for a bad time, management and employes.

To be on the safe side, chief operators and supervisors should keep their fingers on the pulse of service. Be on the lookout for breakdowns caused by service irregularities. Today, according to medical science, a cold can be stopped early, avoiding a great deal of suffering and discomfort. Service difficulties can be too, if chief operators and supervisors are alert in detecting the first sign of a breakdown in service and take the necessary action before the situation becomes acute.

*(Please turn to page 32)*

# MAINTENANCE TESTING EQUIPMENT

By JOHN A. BRACKEN

IT IS said that the electrical capacity of a dry cell cannot be correctly stated as a single definite value. The word "cell" denotes one unit. A "battery" is a combination of cells, that is, two or more cells, so joined together that they act in conjunction.

The amount of electrical energy which a cell can furnish varies under different conditions due to the cell operating at different degrees of efficiency, depending upon the discharge rate.

If the load is excessive, that is, if energy is taken too rapidly from the cell, the depolarizing ingredients cannot completely take care of the hydrogen gas which develops, and other reactions which are produced in the cell cannot diffuse rapidly enough to allow current to continue to flow at its initial rate.

Accordingly, the operating EMF drops, and the cell does not function efficiently. If energy is withdrawn more slowly, the depolarizer is able to react more effectively and therefore the cell maintains its current output and the operating EMF is maintained.

**PART XXVI. The preceding article in this series appeared in the Dec. 3 issue, p. 50.**

However, if the withdrawal of energy is too slow, another source of cell depletion is encountered, that is, the time required to exhaust the cell is so extended that what is termed "shelf deterioration," inherent in most dry cells, is sufficient to detract from the cell's available energy supply and so reduce its current output.

Between these two conditions of service, the heavy and the light loads, there is a point where depolarization is undoubtedly at its best and shelf deterioration is still negligible and in consequence thereof the most efficient service is obtained from the cell.

Individual dry cells used for operating testing equipment may be arranged to form batteries by grouping them together electrically in series, parallel or series parallel. By connecting cells in groups either a high EMF or a greater current output can be obtained, or both of these effects can be obtained by making proper connections. Cells are connected in series by joining together the plus (carbon) pole of one cell to the minus (zinc) pole of the next cell by a short length of insulated No. 16, 18, 19 or 22 AWG copper wire as shown in *Fig. 1.*

In the series method, with each cell carbon being connected to its adjacent cell zinc, the EMF (usually 1.5 volts) of one cell is added to that of the next, the total EMF being the EMF of all cells added together. The current through each cell is the same as the total current from the battery. In the same way, as each cell offers a certain amount of resistance to the current, the total internal resistance of the battery is the sum of each separate cell resistance.

Dry cells in series may be compared to two locomotives coupled together to pull an extra heavy train. In such cases one locomotive cannot supply enough pull to move the train at all,

*(Please turn to page 24)*

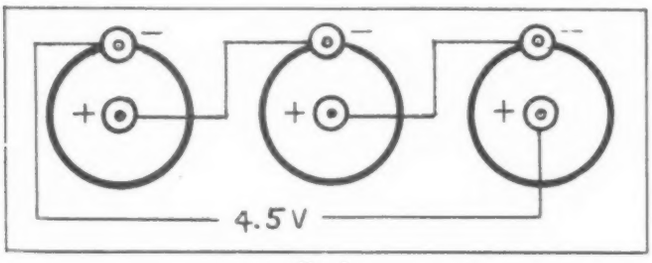



Fig. 1

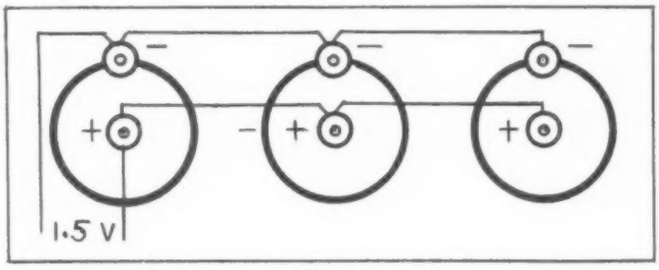



Fig. 2

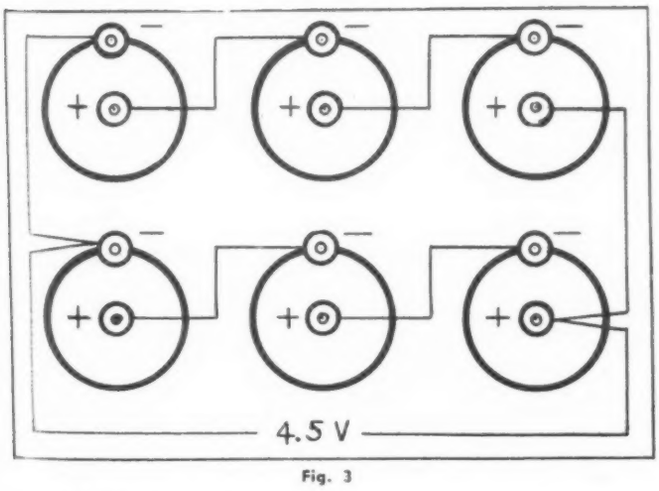



Fig. 3

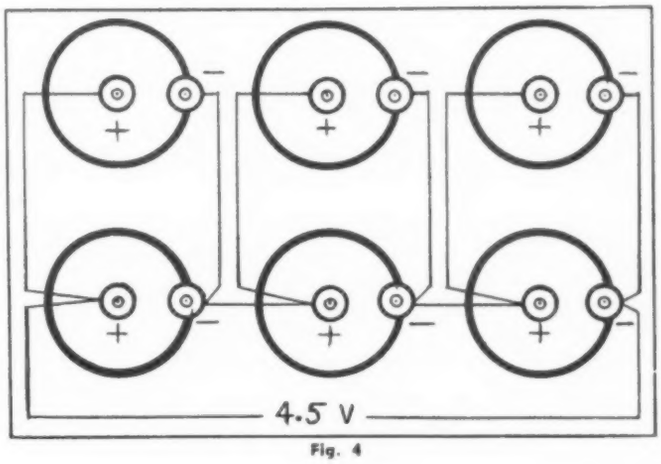
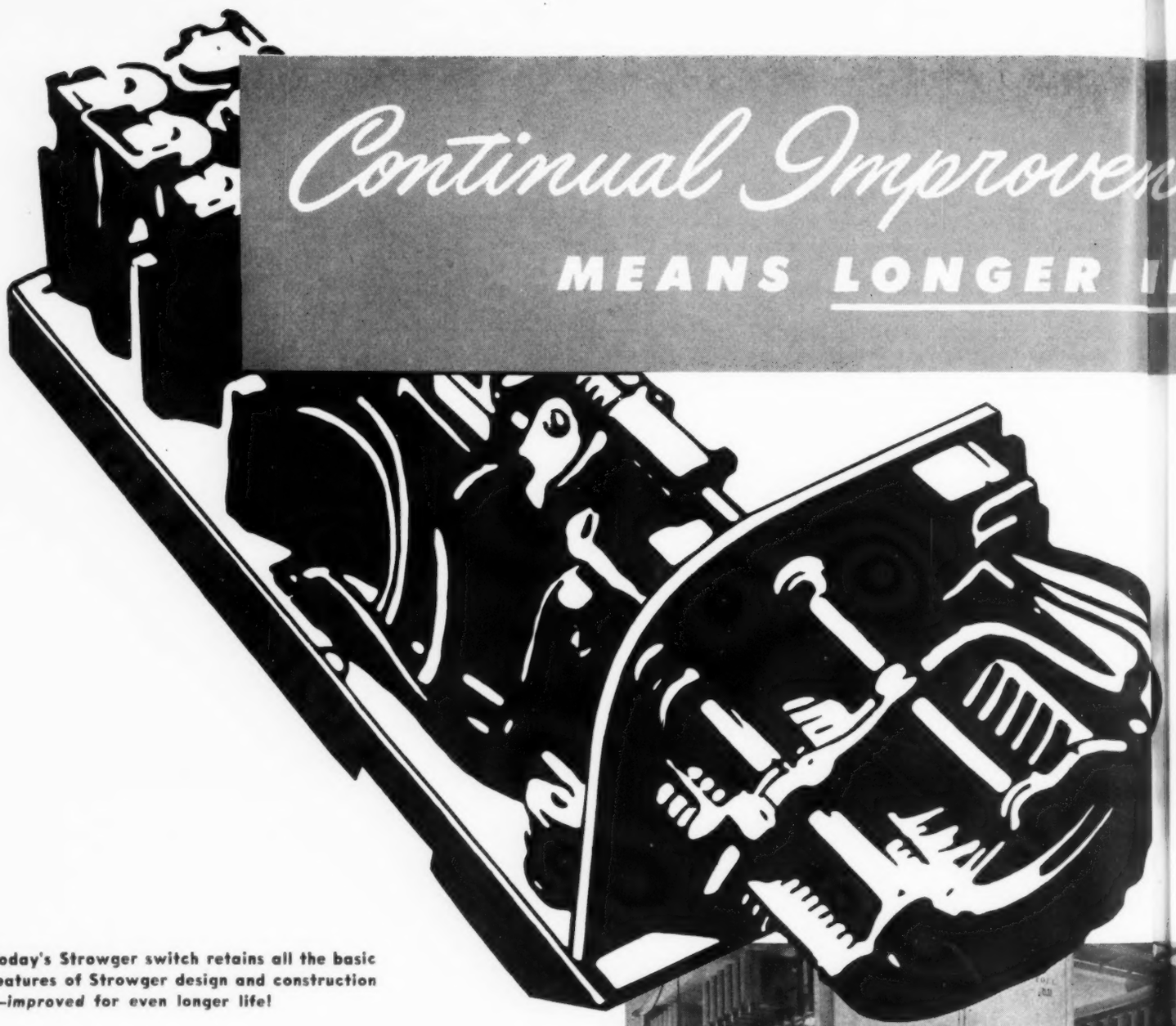


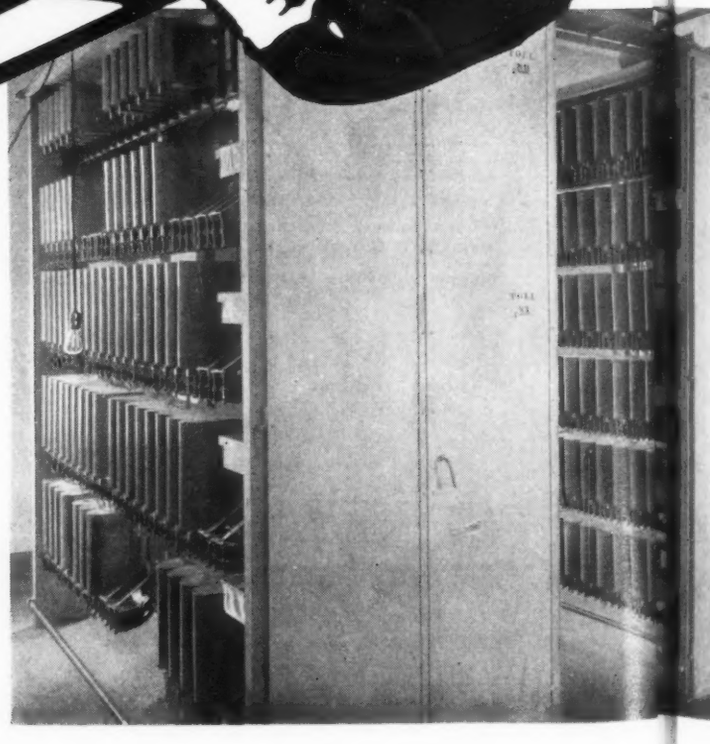

Fig. 4

# *Continual Improvement*

## MEANS LONGER LIFE



**Today's Strowger switch retains all the basic features of Strowger design and construction —*improved* for even longer life!**



**This equipment, cut into service on February 22, 1919, is still operating today, after more than thirty years of consistently dependable service. During those years, several additions have been made, and the equipment has been re-arranged to meet changing traffic. Here is another demonstration of Strowger's Automatic's interchangeability and flexibility!**

# ...rent OF THE STROWGER SWITCH ...IFE FOR STROWGER AUTOMATIC!

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or if it does, to move it at a desired speed, but the pull of the two locomotives added together is sufficient. So with cells in series, with each cell adding to the EMF of other cells in the battery, the force to maintain the flow of electrons, which are the same through all the cells, is generated.

If a cell in a series group is connected incorrectly, that is, with plus pole to plus pole, or minus to minus, it will result in the pushing of electrons in the opposite direction to the push of the remainder of the group. In this case the EMF of the battery is "reduced" instead of increased by the amount of the EMF of the cell, or cells, which are connected incorrectly.

A battery connected in parallel means that it is divided into two or more groups, the cells in each group being in series, with the end carbons and zincs of each group connected together. *Fig. 2* shows a group of cells connected in parallel. The EMF of the battery is the same as that of an individual cell. The current from each cell is only a part of the total current and is approximately the total current from the battery divided by the number of cells in the battery, that is, the current supplied is divided between the several cells.

Connecting cells in parallel gives the same effect as if the materials from each cell in the group were combined to make one big cell. Of course the EMF of the big cell would be the same as that of any one of the smaller cells.

Since the current output depends upon the size of the cell, the big cell made from the material of the smaller ones will give a greater current output. If a single group of dry cells will not produce sufficient EMF and current to operate a particular kind of maintenance testing equipment satisfactorily, it is common practice to combine two or more groups of cells, in a manner so that a battery is formed, to produce more EMF and current than is produced by a single group. Such grouping is termed "series-parallel" and is the most economical arrangement.

When connecting a battery in series-parallel, two separate groups of dry cells are set up in series, as just described, and then placed side by side with their "free" carbon terminals at one end in line and the "free" zinc terminals at the other end. The carbon terminals of each group are then connected together by one wire, and then the two zinc terminals by another wire, as shown in *Fig. 3*.

*Fig. 4* shows a method of connecting a group of dry cells in parallel-series which has some advantage from the standpoint of deterioration of the battery over the method of connecting as shown in *Fig. 3*, because of the variable electrical characteristics of the individual cells.

*(To Be Continued)*

## "SOMETHING FOR NOTHING"

**Rightly or unjustly, Chicago has long been regarded as the stomping ground of racketeers and confidence game operators. For the last 25 years the city has had a "complaint and fraud department," with a staff of lawyers and investigators designed to protect the unwary, blessed with more than a little money and less than enough brains.**

**This department offers a set of rules for the protection of the victims of racketeers and "con men" who prey on the foolish. One rule says: "Investigate before you invest, not afterward." Then follow wise suggestions about reading all the fine print in the contract, putting the money in escrow, and other ways of guarding one's interest. But the last rule is the real humdinger. It says:**

**"*Beware of anyone who pretends to give you something for nothing.*"**

**In these days of the so-called "welfare state," when it seems to be the regular thing to let Uncle Sam pick up the check, everywhere and for everything, that rule has real significance. The Chicago fraud department wasn't thinking of taxes when it issued that rule, but doesn't it apply?**

**Somebody has to pay the bill.**

## DISCRIMINATORY TAXES

**When the war excise taxes were put into effect, it was said that they would be repealed six months after the end of hostilities. Yet they are still in effect, and are still acting as a burden on the consumer and a brake on business.**

**The taxes apply to a considerable list of commodities and services, many of which are not luxuries under any reasonable interpretation of the term. The primary reason for their enactment was to reduce civilian purchasing in time of war. That reason no longer exists, and there can be no valid excuse for continuing this drag on the economy.**

**A concerted campaign is now underway in favor of repeal of the levies at this session of Congress. It is sponsored by the principal associations of retailers, including both chain and independent groups, and by many manufacturers. It is also supported by labor unions, which realize that these taxes discourage buying and so prevent employment. The CIO at its 1948 constitutional convention passed a formal resolution urging "that all excise taxes not regulatory in character be repealed."**

**The National Planning Association—a non-partisan organization representative of business, labor, agriculture and the professions—has said: "The present structure of excise taxes discriminates between producers of taxed and untaxed goods and many of those taxes weigh most heavily on low income families." They are simply a form of class tax, and are highly discriminatory. Their early repeal would be in the interest of business and the consumer, and would be of direct help in maintaining employment.—*Industrial News Review.***

# Courts and Commissions

## Eight Minnesota Companies Granted Rate Increases

Rate increases have been granted to eight Independents by the Minnesota Railroad & Warehouse Commission. They include:

| | *Estimated Net Income* | *Estimated Original Cost* | *Rate of Return* |
|---|---|---|---|
| Dwelle Telephone Co. (Lake City exchange) | $10,560 | $209,728 | 5% |
| Green Prairie Rural Telephone Co. | 57 | 2,560 | 2.2% |
| Hammond Telephone Co. (Hammond exchange) | 401 | 9,788 | 4.1% |
| Hohman Telephone Co. (Sebeka, Menahga exchanges) | 1,388 | 20,350 | 4.9% |
| Lakedale Telephone Co. (Maple Lake, Annandale, South Haven exchanges) | 6,257 | 172,400 | 3.63% |
| Long Prairie Telephone Co. (Long Prairie, Browerville exchanges) | 5,935 | 100,000 | 5.93% |
| Swift County Telephone Co. (Benson exchange) | 9,498 | 180,000 | 5.27% |
| Walker Telephone Co. | 1,214 | 78,244 | 1.55% |

The new schedules for the Green Prairie Telephone Co. and the Hammond Telephone Co. become effective the first billing date after Jan. 31; for the Hohman Telephone Co. after common battery service has been established at its Sebeka exchange and a proposed wage increase has been paid; for the Dwelle Telephone Co., Lakedale Telephone Co., Long Prairie Telephone Co., Swift County Telephone Co., and the Walker Telephone Co., after proposed wage increases have been paid.

V V

## Three Cases Before Nebraska Commission

The Platte Valley Telephone Corp., Scottsbluff, has withdrawn its recently filed rate application, but has informed the Nebraska Railway Commission that it would file a more general request later.

This will include an evaluation of rates as between Gering and Scottsbluff, which are situated on opposite sides of the North Platte River, the latter being four times as populous as the former, but closely united in business.

Strong protests were made by subscribers of the Alvo Telephone Co. at a hearing held by the Nebraska commission on its application to close the exchange. They offered to pay higher rates than the $1.00 a month now charged, but A. B. Stroemer, manager, said that his chief trouble was that he could not get help to maintain lines in service condition. An effort to sell the company to the Lincoln Telephone & Telegraph Co. failed, but Mrs. Frances Whyman of Lincoln, former telephone operator and resident, offered to buy it if the commission would authorize a rate increase sufficient to attract workers.

The Northwestern Bell Telephone Co. has been authorized by the commission to change the type of service furnished in the Crystal Lake area adjacent to the city of Grand Island, now served by rural lines, to direct city type of service at flat monthly rates. These will be lower than the application of individual mileage charges.

A heavy concentration of subscribers has recently been brought about through the exodus from the city of business and professional men and the erection of resort cottages, occupants of which desire seasonal service. Connections will be by buried cable, and the district will be set up as a special rate area.

V V

## PT&T Receives Rate Increase in Idaho

The Idaho Public Utilities Commission, in a two-to-one decision, on Jan. 16 granted Pacific Telephone & Telegraph Co. $115,000 in rate increases on service rendered in Idaho.

In addition, the majority allowed a request for $30,000 additional in revenue on that portion of Washington state served by the Lewiston, Ida. exchange.

The majority decision was signed by H. N. Beamer and B. Auger. Commission President W. B. Joy dissented.

In its order, the majority said the increase will provide a return of 1.15 per cent on the company's investment. It said that "we cannot fix rates to produce a full and reasonable return and, therefore, approve a return that will produce sufficient revenue to pay somewhat more than the amount of pocket costs for expenses."

The two commissioners said in effect that the company was required by law to ask for adequate compensation to allow for the proper kind of service.

Commissioner Joy, in his dissenting opinion, said that the annual losses shown by the company throughout its entire history "are bookkeeping losses.

"I take complete exception to this majority order and to its failure to give evidence of consideration of testimony submitted by many protesting witnesses," Commissioner Joy said. "I am astounded at the majority conclusion that the applicant has perhaps committed an unlawful act in not asking for greater increases and higher return, and the consequences incident to such a conclusion."

V V

## Commissions to Study Toll Rates; Oppose Excise Tax

Interstate cooperation in a study of telephone toll rates was urged in a resolution adopted by public utility commissioners from New England states at a conference on Jan. 13 in the office of Chairman Thomas A. Flaherty of the Massachusetts Public Utilities Commission.

Mr. Flaherty said the National Association of Railroad & Utility Commissioners had named a committee to undertake a nationwide study of telephone rates. This study, he said, would try to correlate toll rates in interstate and intrastate services.

The conference, which was presided over by Chairman Edgar H. Hunter of the New Hampshire Public Service

Commission, also adopted a resolution calling for repeal of federal excise taxes on transportation and communication.

V V

### Court Hears Idaho Rate Case

The Idaho Supreme Court on Jan. 16 took under advisement the state's application to remove the request of the Mountain States Telephone & Telegraph Co. for a rate increase from the district court.

Arguments were heard by the supreme court on the petition of the state for a writ of prohibition. This application challenged an injunction granted by District Judge C. E. Winstead of Boise last April.

Under this injunction the telephone company began collection of increased rates designed to produce about $605,000 additional annual revenue. This rate structure earlier had been denied, for the most part, by the Idaho Public Utilities Commission.

In asking the supreme court to remove the case from the district court, J. N. Leggat, assistant attorney general, argued that the supreme court had exclusive jurisdiction to hear appeals from the commission.

He also argued that the district court was without jurisdiction, either under the statutes or in equity, to issue the injunction.

The telephone company obtained the injunction on the grounds the commission was forcing it to operate under a rate structure that was confiscatory.

J. H. Shepherd of Denver and Carey Nixon of Boise, representing the telephone company, argued that under the statutes and the federal constitution, the district court had jurisdiction to prevent confiscation of its property under the commission-approved rates.

They also argued that the district court had the inherent right to assume jurisdiction in equity, even if it did not have that power under the statutes.

Additional money being collected by the telephone company is being impounded under bond pending a final determination of the case.

V V

### Prevents Interference With SW Bell Rates in Kansas

Holding that the Southwestern Bell Telephone Co. had shown its existing rates in Kansas would produce irreparable injury to the company, District Court Judge Dean McElhenny granted on Jan. 16 the company's request for an injunction to prevent the Kansas Corporation Commission from interfering in the collection of higher rates (TELEPHONY, Dec. 10, p. 28).

The court's action gave the company permission to set temporary rates of its own choosing to remain in effect until final determination of "just and reasonable rates" is made by the commission.

Southwestern officials indicated the increase would amount to approximately $3,400,000 a year, affecting 143 cities.

Chairman Jeff Robertson announced the commission would appeal the decision to the state supreme court as soon as preliminary legal steps could be taken. A commission attorney indicated the supreme court would be asked to prevent the company from installing a rate increase pending determination of the appeal.

The lower court ruled that the company must file a bond equal to the increase on an annual, statewide basis before any raise could become effective.

V V

### SW Associated Asks Higher Rates at Oklahoma Exchange

Application for increased rates at Boise City, Okla., was made Jan. 19 to the Oklahoma Corporation Commission by the Southwestern Associated Telephone Co., Dallas, Tex. Plans are being made to convert some of the stations of the Boise City exchange to dial operation.

The commission has dismissed the complaint of Yale, Okla., residents against the company's service upon receipt of a statement that city authorities and company officials had agreed to the dismissal.

Company officials stated that it will install dial equipment in Yale during the first quarter of 1952, barring circumstances beyond its control.

V V

### SW States' Oklahoma Rate Hearing Nearing Completion

Representatives of the Southwestern States Telephone Co., Brownwood, Tex., and Oklahoma Corporation Commission experts nearly completed presentation of their testimony and exhibits Jan. 18 and 19 on the company's rate increase application. It operates 56 exchanges in Oklahoma (TELEPHONY, Dec. 24, p. 28).

On Jan. 20 hearings started on protests of 11 towns against granting the proposed increases unless service is improved. Twenty-nine towns originally entered protests, but many withdrew them after company assurances of better service.

Company representatives state that it lost 14 per cent on its investment in Oklahoma in 1948, computing on the



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## ratchet handle slack puller

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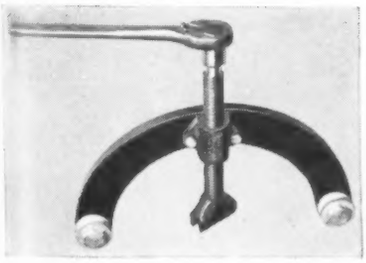

The same dependable Slack Puller, but with a ratchet added. This type of handle enables the operator to pull slack with the Little Giant Slack Puller, requiring even less effort than would be needed with the conventional model.

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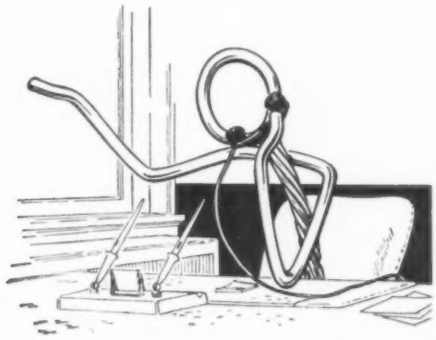

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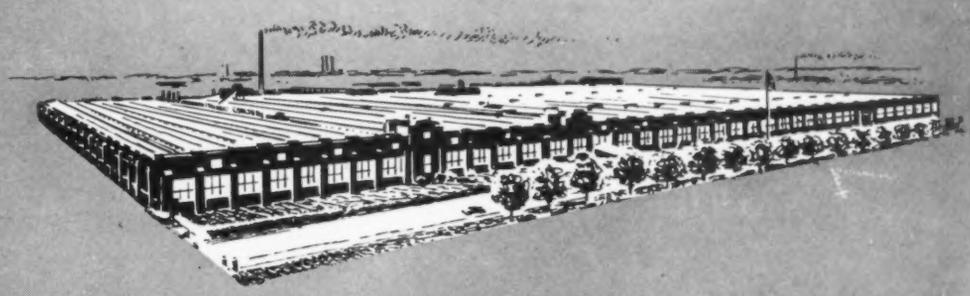

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original cost less depreciation method. It fixed $1,886,706 as the depreciated rate base value of its Oklahoma properties on Dec. 1, 1948.

Evidence also was introduced to show that the company earned only .76 of 1 per cent return on its investment in Oklahoma in 1948 and .52 of 1 per cent for the first 10 months of 1949. The proposed rate schedule would grant an estimated 4.21 per cent annual return.

V V

## Ohio Company Sold

The Columbus Grove (Ohio) Telephone Co. has purchased the Cloverdale Telephone Co. and plans to rebuild the system of the latter company.

V V

## Summary of Commission Rulings and Hearings

### California Public Utilities Commission

Jan. 9: Order authorized Associated Telephone Co., Ltd., Santa Monica, to increase directory advertising rates at its Santa Paula exchange.

Jan. 9: Order extended time to file authorized rates for directory advertising by Dos Palos (Calif.) Telephone Co.

Jan. 16: Hearing on application of Sunland-Tujunga Telephone Co., Sunland, for authority to increase rates in Los Angeles County.

## REA TO MAKE FIRST TELEPHONE LOAN IN FEBRUARY

**The first REA telephone loan is expected to be passed out late in February at a ceremony in the Washington headquarters of REA Administrator Wickard. Name and location of the company to receive the loan is yet unrevealed.**

**Meantime, REA headquarters indicated (as of Jan. 23) that approximately 100 completed applications from 32 states "seem to be in order," for approval: Kansas leads with eight, followed by Alabama with six; Minnesota, New Mexico, North Carolina, North Dakota, five each; Georgia, Kentucky, Mississippi, Texas, and Wisconsin, four each; Louisiana, Oklahoma, Oregon, Pennsylvania, three each; Iowa, Nebraska, South Carolina, South Dakota, Virginia, Washington, West Virginia, Wyoming, two each; while one completed application has been received from each of the following states—Colorado, Florida, Indiana, Michigan, Montana, New York, Tennessee, Utah, and Vermont.**

### Kansas Corporation Commission

Jan. 30: Hearing on application of Rush Center (Kan.) Telephone Co. for authority to change rates.

Jan. 31: Hearing on application of Farmers Telephone Co., Rozel, for authority to change rates.

Mar. 13: Hearing on application of Crawford Telephone & Telegraph Co., Girard, for authority to change rates.

### Missouri Public Service Commission

Feb. 6: Hearing on complaint of City of Rich Hill against Rich Hill (Mo.) Telephone Co.

### New York Public Service Commission

Jan. 27: Hearing on petition of Westfield (N. Y.) Telephone Co. for approval of change of corporate name; for amendment of certificate of incorporation; for approval of the acquisition of capital stock of Mayville, Ripley and Portland Telephone Companies; for approval of the merger of these three companies.

### Oklahoma Corporation Commission

Feb. 1: Commission investigation of Ardmore-Graham Telephone Co., Ardmore, regarding improved service.

Feb. 6 to 10: Hearings on complaints against rate increase application of Southwestern States Telephone Co., Dallas, Tex., by exchanges at Gould, Hollis, Coweta, Porter, Prague, Purcell, Wayne, Washington, Rosedale, Collinsville, Jenks and Erick.

Feb. 15: Hearing on application of Stilwell (Okla.) Telephone Co. for authority to increase rates.

Feb. 16: Hearing to determine whether or not an area near the Shawnee exchange of the Southwestern Bell Telephone Co. is Bell territory.

Mar. 17: Hearing on application of W. O. Cooper, Jr., for improved service from Grainola Telephone Co.

### Pennsylvania Public Utility Commission

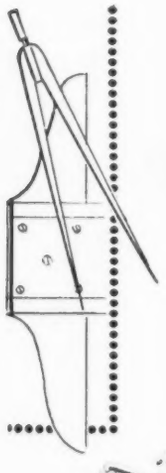
Jan. 25 to 27: Hearings on complaints of George W. Schroeck *et al;* Pennsylvania Public Utility Commission; Cities of Erie, Johnstown, Franklin, Corry, and Boroughs of Somerset, Berlin, Windber, and Meyersdale against Pennsylvania Telephone Corp., Erie, regarding alleged unfairness of proposed rate increase.

### Wisconsin Public Service Commission

Jan. 23: Hearings on complaints of H. J. Landry *et al* and City of Mauston against Commonwealth Telephone Co., Madison.

Jan. 25: Hearing on complaint of Oliver M. Jacobson *et al* against Mid-West States Telephone Co., Inc., regarding rates and service.

Jan. 26: Hearing on complaint of Waupaca County Hospital against Weyauwega (Wis.) Telephone Co., regarding service classification.

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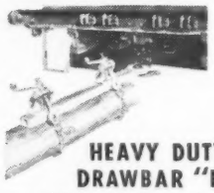

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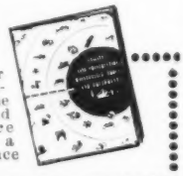

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## In the Nation's Capital

*(Continued from page 17)*

Investigation (FBI) and other federal agents engaged in various confidential investigations have been tapping telephone wires pretty regularly since 1934. Some of these cases have come up to the supreme court. The judges have been pretty caustic in their comments about indiscriminate wire tapping and have outlawed the use of such evidence in federal court rooms. But they never have definitely spiked all activity of federal agents in the actual process of tapping telephone lines.

As a result the FBI and other federal agents have been using wire tapping to develop "leads." This, in turn, has resulted in evidence which can be confirmed in other ways so that it can be used in the courtroom without running the embargo on wire-tapped evidence, as such. Indeed, FBI men frankly admit that if they did not have access to this important means of dealing with underworld and subversive characters the whole effort of the FBI would be hamstrung and crippled.

But recent espionage cases in federal courts have raised anew the hackneyed-old dispute of whether certain evidence was obtained by tapping telephone wires and, if so, to what extent it should be admitted as evidence. The result is a very unsatisfactory condition which the Congress of the United States may have to settle by definite statutory language.

For example, one of these cases involved a government employe suspected of turning over confidential information to a foreign agent against the interest of the national security. FBI agents first got wise to this situation by tapping telephone wires. But later on they were able to develop direct, first hand evidence of treasonable activity by confronting persons who were parties to the intercepted telephone conversation.

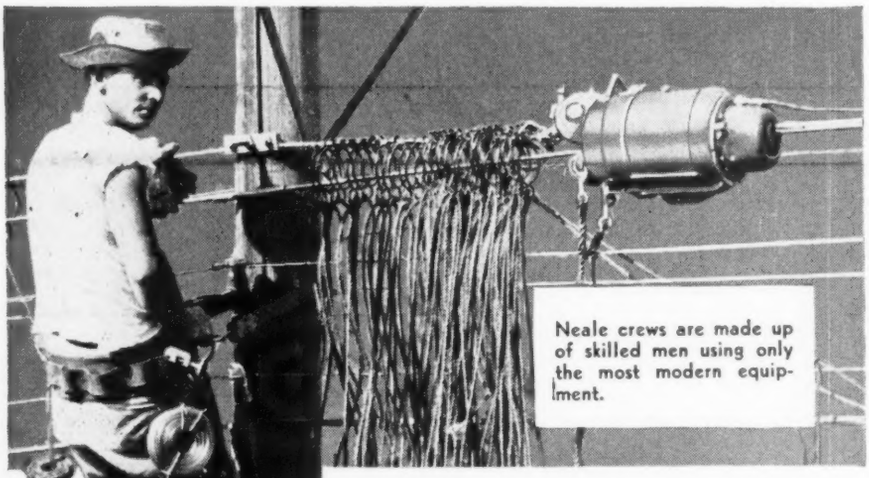
Granted, therefore, that the original eavesdropping did not produce evidence which could be properly used in the federal court — what about evidence that was developed when suspected parties were directly questioned by federal investigating agents? Does the original ban against the use of wire-tapped evidence extend to all evidence subsequently developed in a chain of circumstances first set in motion by the unauthorized interception of telephone conversations? Or does the direct intervention of federal investigating agents — first tipped off by the wire-tapped conversation — set up a new form of evidence which can be used in federal courts?

The uncertainties surrounding this situation have resulted in split decisions in the highest court. For the same reason the Justice Department back in 1942 — a year after Pearl Harbor — asked for congressional authorization of wire tapping in cases touching "the national security and defense."

But if the confidential character of telephone service may properly be invaded by the government—to trap spies and domestic traitors—it would seem that Congress ought to say so, in plain statutory language which would outline the extent of such government activity and set up safeguards against its abuse.

Last year the Justice Department—evidently timid about facing a showdown on this delicate situation—withdrew its earlier request for wire-tapping authority in the first session of the present Congress. As a result, federal wire-tapping policy is still in the twilight zone of ambiguity.

The recent federal court spy trials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have stirred up fresh agitation for a more thoughtful and positive policy. The result is likely to be a bill to be introduced in Congress in the near future which will have Justice Department backing and which will attempt to outline what is and what is not proper in the way of government wire tapping on the nation's telephone service.

## ABC of the Telephone

*(Continued from page 15)*

operation of the rectifier, it may be necessary to adjust the resistor "R" once or twice, but thereafter the rectifier can be expected to operate several years at a time without readjustment.

**Stabilization of Direct Current**

Certain rectifier units are equipped with dc stabilizers consisting of a saturable core reactor. This reactor is designed to maintain a constant dc voltage as the connected load varies between its minimum and maximum limits. The saturable core reactor may be considered in the same light as a retard coil with a dual set of windings, as shown in *Fig. 2*.

If the ac and dc circuits are viewed separately or as individual circuits, without regard to the other circuit, the coil offers high impedance to ac and low resistance to dc. However, the degree of magnetic saturation of the core governs the amount of impedance presented to the alternating current. This relationship is said to be converse because when the magnetic saturation is low the impedance to ac is high, and when the saturation is high, the impedance is low.

In operation, the dc stabilization usually follows this pattern:

(1) An increase in the connected load actually lowers the combined resistance across the dc terminals of the rectifier. The lower resistance causes an increased current flow which shows that the output voltage is tending to drop.

(2) The increase in current flow through the dc windings of the reactor unit builds up the saturation of the core.

(3) The alternating current, meeting less impedance, increases accordingly.

(4) As the connected load decreases, the process of stabilization is reversed.

Stated in a different way, the reactor unit can be looked upon as a choke coil with an automatic adjustment feature. However, the ac and dc coils along with the amount of iron in the core have to be properly balanced to attain uniform operating characteristics.

**Correct Wiring of Rectifiers**

One of the most satisfactory means of connecting a rectifier to a switchboard is to use a battery as an intermediate cushion. A typical installation schematic drawing is shown in *Fig. 3*. A study of this drawing will bring out these important features:

(1) Wires from the rectifier to the battery should not be run parallel to the wires from the battery to the switchboard.

(2) Wires from the battery to the switchboard should be as short as possible and of the correct size as recommended by the manufacturer. *Table I* lists the wire gauges to be used for particular loop lengths for various models of a typical rectifier.

The wire sizes given in the table will provide a 1 per cent voltage drop at the full rated load of the rectifier. Use of wire sizes smaller than those recommended by the manufacturer of any particular rectifier are not consistent with best battery operation.

Also, these wires should be placed in a single pipe or BX conduit.

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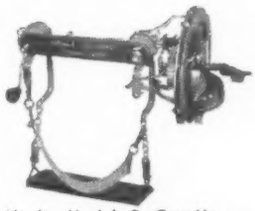

Neale Model B One-Man Cable Spinner operates from ground or stand.

Molded Lead Shield gives more protection at the pole.

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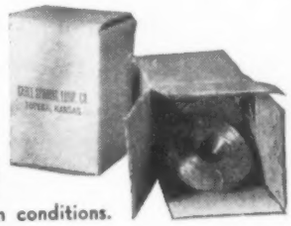

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(3) Either side of the dc supply may be grounded.

(4) The frame of the rectifier case is grounded for safety reasons, as required of practically all other units of electrical apparatus.

(5) The dc circuit should be protected both by a charging fuse and a load fuse.

The advantages of dual fusing are apparent when the fact is considered that there are two separate battery circuits to protect. In the event of a short circuit in the charging leads, the charging fuse would be opened and the load carried by the battery. If the load fuse operates the switchboard will go dead. As mentioned previously, the battery placed between the rectifier and the load serves as an excellent cushion to remove the last vestiges of hum that may be present in the dc current.

*(To be continued)*

**[The author desires to acknowledge the assistance and cooperation of the various rectifier manufacturers in gathering information for these articles.]**

# The Operator's Corner

*(Concluded from page 20)*

### Traffic Questions

(1) On a terminal call to a large city for a residence telephone, should you ask for Information?

(2) On a long distance station call on which no supervision is received from either station, should you monitor after you start timing?

(3) If conversation does not begin within a few seconds after you start timing a station call on which no supervision is received from either station, how should you proceed?

(4) What is a "Via Office?"

(5) What code is used for "community dial" office?

*Answers are presented on page 37.*

V V

### First New York Woman Operator Dies

Miss Katherine Schmitt, 85, reputedly the first telephone woman operator employed by the New York Telephone Co., died Jan. 11.

Miss Schmitt became a telephone operator in 1882, and when she retired in 1930 headed the telephone company's training school for operators.

When she started, men were employed as operators, and for some years after they still handled the night work.

## RURAL TELEPHONE LOAN NEWS

### Loan for Plant Expansion Sought in North Carolina

The possibility of obtaining a loan from merchants and interested residents to help finance a telephone line between Mebane and Prospect Hill, N. C., was considered at a conference of representatives of the Mebane Home Telephone Co., the Mebane Chamber of Commerce and the North Carolina Utilities Commission Jan. 17.

Building and equipment costs of about 22 miles of telephone plant needed to serve 50 or 60 Prospect Hill subscribers are estimated at $18,000, an amount which would be prohibitive through usual financing methods. The concensus was to try to obtain $12,000 as a loan from Mebane merchants and interested residents of Mebane and Prospect Hill, with the company supplying $6,000 and paying for the $12,000 loan at a low interest rate over a long period of time.

V V

### Nebraska Company Plans To Apply for REA Loan

Stockholders of the Hamilton County (Neb.) Farmers Telephone Association recommended to their directors that they investigate and give careful consideration to the telephone loan program of the Rural Electrification Administration. The resolution favored an increase in the capital structure in order that funds might be available for replacements for obsolete and worn-out equipment. An attempt had been made during the last year to interest investors in an issue of $15,000, 4 per cent preferred stock, but only $6,300 was sold.

Officers of the company told those present at the annual meeting that $75,000 was needed, and suggested the possibility of getting an REA loan at 2 per cent, payable in installments over a period of 35 years. Thirty thousand dollars would be used to retire preferred stock and pay off bank loans, leaving $45,000 for rehabilitation and finishing the work of metallicizing all lines. The company had 2,560 stations in service Jan. 1, a gain of but four. Four exchanges reported station losses.

V V

### Kansas Exchange Burns

The telephone exchange office of the Carlton (Kan.) Telephone Co., serving about 150 subscribers, was destroyed by fire on Jan. 18.

## 1949 Fire Loss Only 6.1% Below All-Time High of 1948

Fires destroyed an estimated $667,536,000 in American property during 1949, a figure only 6.1 per cent below the all-time record for destruction set in 1948, it was announced recently by the National Board of Fire Underwriters. This was the first drop in annual fire losses since 1942.

Fire destruction in December, 1949, was estimated at $67,279,000, an increase of 26.7 per cent over losses of $53,116,000 reported in November, 1949, and a decrease of 3.1 per cent from losses of $69,397,000 reported in December, 1948.

After remaining at a fairly steady level during the years 1939 through 1942, American fire losses began climbing rapidly through the war and postwar years.

The 1949 reduction in fire losses resulted from several factors, a Fire Underwriters spokesman said. Among them were the intensified fire prevention programs in many American cities, and the slight drop in the general price level, which meant that the replacement cost of burned property was somewhat less in 1949 than in 1948.

"Every American can help reduce this waste of the nation's resources by being careful with cigarettes and matches, which together cause a third of our fires, and by following the simple safety precautions which would make home fires a rarity," the spokesman pointed out.

Countless fires during 1949 were caused by faulty chimneys, stoves, and furnaces, by misuse of gasoline and other flammable liquids, and by defective wiring and electrical appliances, he said.

V V

## OBITUARIES

SAMUEL H. MILDRAM, for many years an active engineer for the Massachusetts Department of Public Utilities, died in Brookline, Mass., Jan. 18. He possessed a wide knowledge of engineering and accounting practice which enhanced his reputation in appearances before legislative bodies and commissions over a long period. At the time of his death he was retained in this class of work by the Boston Edison Co.

• • •

WILLIAM R. READING, former plant safety superintendent of the New England Telephone & Telegraph Co., Boston, died at Melrose, Mass., Jan. 19. He started work with the New England company in 1897 as a night operator, and retired in 1947.


THE WHITNEY BLAKE BULLETIN

DROP WIRE ECONOMICS

THE ECONOMY OF HIGH QUALITY

The initial cost of drop wire is insignificant. Labor, overhead and miscellany can account for as much as 80% of the total installed cost. Thus, when so-called "low-cost" drop wire *fails*, its true cost becomes apparent — to the dismay of shortsighted drop wire economists.

Ordinary drop wire fails due to deterioration of insulation, or a lack of adhesion to the conductor. In TELEPRENE drop wire a special neoprene-compounded jacket, plus Whitney Blake's exclusive Teleplate process, provides the telephone operating company with *true* drop wire economy — a drop wire that resists weather so steadfastly and adheres so tenaciously that predictions as to its life-expectancy are nigh impossible. *Not a single case of TELEPRENE failure has been reported to date.*

The story of the research and effort behind TELEPRENE is an engrossing one. But most interesting to telephone people is the story of TELEPRENE's *performance, its economy* . . . For full information, write Whitney Blake *today.*

THE DIFFERENCE IN COST IS PENNIES

THE DIFFERENCE IN LIFE IS YEARS

Reprints of this advertisement are available on request.

WHITNEY BLAKE CO., NEW HAVEN, CONN.

TOLL TICKETS

2-A OUT 1-L OUT

2-B IN

STANDARD FORMS FOR EVERY PURPOSE

SPECIAL FORM PRINTING TO YOUR ORDER

THE WESTWOOD PRESS

DEPT. G, NEWTON, IOWA

*We Make More*

*Different*

*Better*

*Reasonably Priced*

**TELEPHONE DIRECTORIES**

*than any other printer*

*R. R. Donnelley & Sons Company*

*350 E. 22nd St., Chicago*

# PRACTICAL SUGGESTIONS FROM THE FIELD

***Telephone men and women who have used new methods or devices to improve the operation of their companies are invited to share their ideas with others in this column. Publication will be after approval by three judges, and the contributors will be paid. Here's your chance to let fellow telephone people know about your company and to make the benefits of your progress industry-wide.***

★ ★ ★

## Holding Corner Poles Without Guying

IN ORDER to prevent sag in line wire when a corner cannot be guyed, poles are set out of line two or three feet at the butt with the top in line. If the span is short and only a few wires are in use, two feet of rake will be adequate. On longer spans or heavier lines, three feet or more rake may be required.

The Rollin Telephone Co., Hudson, Mich., has two 20-ft. poles on corners with three and one-half feet of rake, supporting a 10-pin crossarm, full of wires, that has been in service over 15 years, and the corners are still in line, reports W. F. Bradstreet.

## "Converted" After European Trip

**If the telephone company could amass a few extra nickels for a special fund to handle complaints, I've got just the treatment for them —send the irate subscribers, en masse, for a three-months' tour of Europe.**

**This, I guarantee, would bring them back to the states with a vastly increased respect for the almost incredible efficiency of American telephone service.**

**A 15 or 20-minute wait is nothing out of the ordinary in making a call from one section of Paris to the other. Wrong numbers turn up as frequently as flies at a beach-party.**

**Remember the old crystal-set radios with the cat's whiskers? The same squeaking, snarling and static are still heard on the French telephones.**

**One morning, I tried to call my room from the lobby of the hotel— a distance of some 50 yards—and the voice came through as remote as the echo of a rose-petal thrown down the Grand Canyon.**

**In Italy, telephone service is more of a joke than a tragedy. No one in his right mind tries to place a call to any destination he can walk to in a half-hour.**

**It costs $80 to have a home telephone installed in Italy—which is a lot of money in America, and a fortune over there. Part of this cost is returned in telephone service, but the subscriber still pays a hefty sum for equipment and installation. As a result, only a couple of families in each block can afford a telephone.**

**Nevermore will I mutter dark curses under my breath at any operator who makes me suffer a 30-second delay in placing a call. I am a reformed character: When I get the wrong number after my own faulty dialing, I don't try to obtain a refund on my nickel. For me, that's a major spiritual conversion. — Sidney J. Harris, Chicago Daily News columnist.**

The poles are so located that anchors could not be used. When this type of corner is used, the line wire should not be pulled to the tension ordinarily recommended for a guyed corner.

The use of this plan is recommended only for locations where it is difficult or impossible to install guys and anchors.

• • •

### Method of Recovering Wire

IN THE recovery of old iron wire by the use of pick-up reels, the wear on linemen's gloves is excessive. One man can wear out a pair of leather gloves in a relatively short time.

In order to overcome this, Stanley Pierce, Minnesota Telephone Co., International Falls, Minn., runs the wire through a five-inch length of iron conduit to take the wear off gloves. This arrangement works well in picking up wire and stopping at old twisted splices which are cut and replaced by compression type sleeves.

The length of conduit also is used as a brake to stop the wire, as the end of a length is reached by twisting at an angle so that the wire exerts pressure on each end.

V V

### Voted Life Membership in Oklahoma Telephone Ass'n

The Oklahoma Telephone Association board of directors at a recent meeting unanimously voted J. W. Walton of Broken Arrow a life membership in the association.

In 1948, the board ordered a scroll prepared and sent to him enumerating some of the many services he had performed for the association before his retirement from active service in the industry.

Mr. Walton has served twice as president of the Oklahoma Telephone Association and has also served on the board of directors of the United States Independent Telephone Association. During each of the years in which he was associated with the Oklahoma association he was always in the lead of some movement to improve the position of the telephone industry in the state.

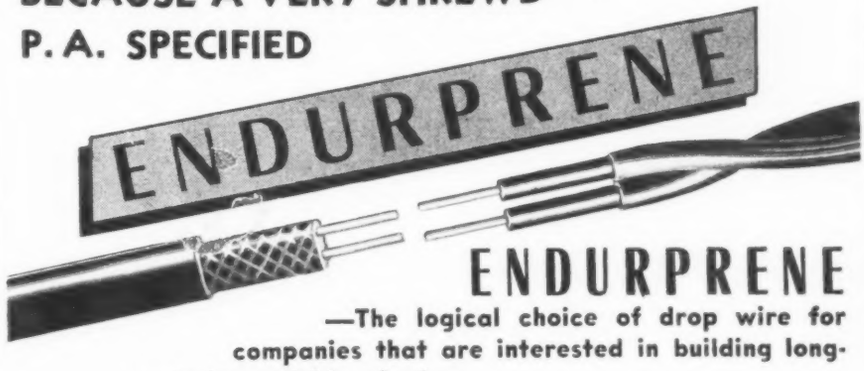
As head of the Broken Arrow Telephone Co., he installed the first Independent dial telephone system in the state.

V V

### Wage-Hour Exemptions

Regulations redefining the Wage-Hour Act exemption for executive, administrative and professional employes, which went into effect on Jan. 25, have just been issued by the wage-hour administrator.

THEY'RE **ALL HAPPY**
BECAUSE A VERY SHREWD
P. A. SPECIFIED




**ENDURPRENE**

—The logical choice of drop wire for companies that are interested in building long-enduring outside plant.

FOR STRENGTH—A Bronze Conductor*
FOR ADHESION—Special Electroplating
FOR INSULATION—Natural Rubber

**AND** For a long life in heat and cold, rain and shine, smoke and fumes, a rugged jacket of

**NEOPRENE**

*Also available in copper and copperweld.
*Samples and Data on Request*

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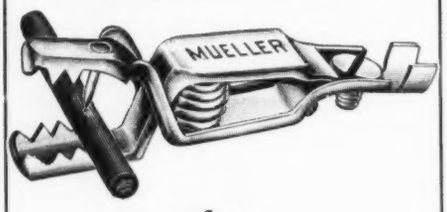
KELLOGG SWITCHBOARD & SUPPLY CO.
CHICAGO, ILLINOIS

GENERAL INSULATED WIRE WORKS, INC.
PROVIDENCE 5, RHODE ISLAND

PRESENTING THE NEW

Mueller

NEEDLE CLIP




for

Telephone Linemen

Needle makes quick contact through insulation of the heaviest drop wire.

Solid bronze clip—entirely non-corrosive. Wire automatically centers up in notch on jaw under needle.

Meshing teeth at forward end allow use for many additional applications. Notch on end gives solid contact on studs in terminal box.

The modern, streamlined version of a type of clip that has been in widespread use for over a generation.

SEND FOR FREE SAMPLE & CATALOG 964

Mueller Electric Co.

1606 E. 31st St., Cleveland 14, Ohio

## COMING CONVENTIONS

**Minnesota Telephone Association, St. Paul Hotel, St. Paul, Jan. 30, 31, and Feb. 1.**

**Texas Telephone Association, Plaza Hotel, San Antonio, Mar. 6, 7, and 8.**

**Illinois Telephone Association, Abraham Lincoln Hotel, Springfield, Mar. 22 and 23.**

**Nebraska Telephone Association, Paxton Hotel, Omaha, Mar. 28 and 29.**

**Iowa Independent Telephone Association, Fort Des Moines Hotel, Des Moines, Apr. 4 and 5.**

**National Executives' Conference (United States Independent Telephone Association) Edgewater Beach Hotel, Chicago, Apr. 17 and 18.**

**Ohio Independent Telephone Association, Deshler-Wallick Hotel, Columbus, Apr. 24, 25, and 26.**

**Indiana Telephone Association, Claypool Hotel, Indianapolis, May 3 and 4.**

**Pennsylvania Independent Telephone Association, Roosevelt Hotel, Pittsburgh, May 9 and 10.**

**Kansas Telephone Association, Jayhawk Hotel, Topeka, May 16 and 17.**

**New York State Telephone Association, Seneca Hotel, Rochester, May 24 and 25.**

**California Independent Telephone Association, Biltmore Hotel, Los Angeles, June 1 and 2.**

**Michigan Independent Telephone Association, Olds Hotel, Lansing, Sept. 14 and 15.**

**United States Independent Telephone Association, Stevens Hotel, Chicago, Oct. 9, 10, and 11.**

**Missouri Telephone Association, Muehleback Hotel, Kansas City, Nov. 20 and 21.**

HERE'S THE DATING COLOR CODE CHART
1947 WHITE
1948 YELLOW
1949 RED
1950 GREEN
1951 BLUE
1952 GREY
1953 ORANGE
1954 WHITE AND YELLOW
1955 WHITE AND RED
1956 WHITE AND GREEN
1953 1954 1955 1956 1947 1948 1949
DATED ALPHADUCT DROP WIRE
This simple method of DATING DROP WIRE furnishes a FOOL-PROOF method of checking service life . . . originated by ALPHADUCT in 1947.
Blue and orange threads always identifies ALPHADUCT as the MANUFACTURER.
RED THREAD
INDICATES wire delivered in 1949.
This color code is changed each year.

Ray Blain, TELEPHONY's technical editor, wrote in his Plant Man's note book, TELEPHONY May 21 issue: "The maintenance of accurate service records of individual drop wire installations in the average exchange proves a most difficult task.

This difficulty has been largely overcome by the design of DATED DROP WIRE that is now being sold by at least one manufacturer.

In our opinion, this arrangement represents real progress in the simplification of accurate plant records."

You can eliminate forever costly record keeping. This revolutionary method of DATING DROP WIRE is a daring challenge to all quality claims and is your assurance of the manufacturer's confidence and willingness to have you check his product against all competition.

ALPHADUCT WIRE & CABLE CO.

Millstone, New Jersey — Over 50 years of quality manufacturing experience.

## W. P. Hollis Sales Manager Of Federal Telephone & Radio

William P. Hollis has been appointed telephone sales manager of Federal Telephone & Radio Corp., Clifton, N. J., associate of International Telephone & Telegraph Corp. He succeeds L. J. Denney, who has been assigned to IT&T operations in Spain.

Mr. Hollis, who joined the sales staff of Federal last year, had been a member of the IT&T since 1944, when he became associated with the International Standard Electric Corp., where he served as sales promotion supervisor, contract termination manager and appliance supervisor for the export department. He later became commercial director of Standard Electrica, IT&T associate in Rio de Janeiro, Brazil. Upon returning to New York, Mr. Hollis handled the activities of the International Standard Trading Corp. until he joined Federal.

Prior to 1944, he was with the U. S. Signal Corps in the Army communications commercial agency office of the Chief Signal Officer in Washington, D. C. and New York City. In this position he had charge of the commercial aspects of the teletypewriter networks.

Mr. Hollis began his active telephone career in 1928, when he joined the Northwestern Bell Telephone Co., of which he became sales engineer and

W. P. HOLLIS

local manager. He later became general commercial manager of the Central Telephone Co., Sioux Falls, S. D., one of the largest Independent telephone companies in the U. S. In this latter capacity he was instrumental in converting many exchanges in the midwestern states to automatic dial equipment.

V V

## Lee McCanne Named President of Rochester Commerce Group

Lee McCanne, vice president of the Stromberg-Carlson Co., on Jan. 13 was installed as 60th president of the Rochester (N. Y.) Chamber of Commerce.

The Rochester chamber, the largest for a city of that size, was founded in 1889. Mr. McCanne's father, the late W. Roy McCanne, former Stromberg-Carlson president, was the chamber's 33rd president in 1921.

Starting as a radio engineer with Stromberg-Carlson in 1927, Mr. McCanne was advanced to increasingly important posts until he was made radio sales manager in 1934. In 1940 he was elected assistant general manager and in 1945, vice president. He was named a director of the company in 1935 and served as secretary from 1935 to 1945.

### Answers to Questions on Page 32

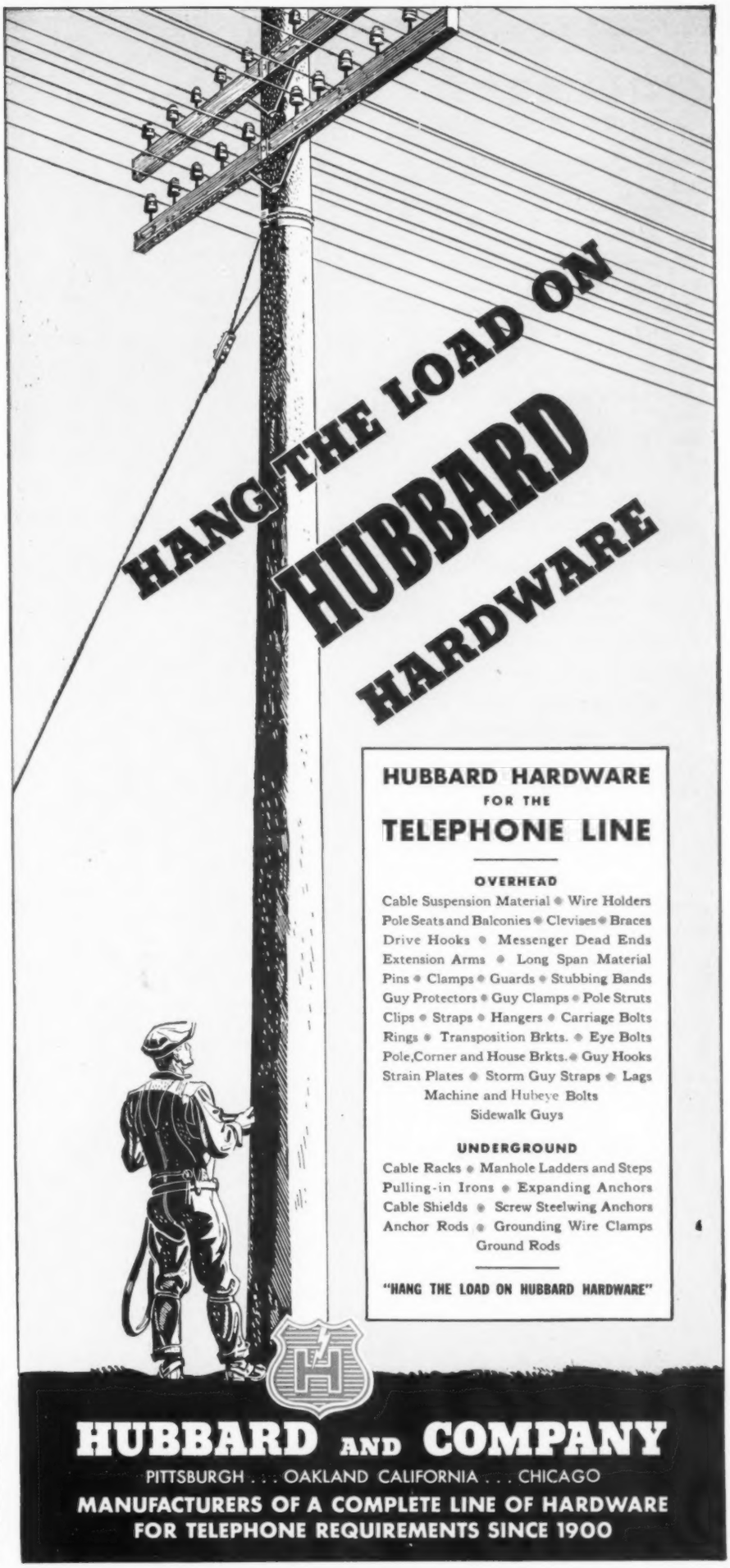
(1) Yes.

(2) Yes.

(3) Draw a line through the original timing entry and start timing again when conversation begins.

(4) A via office is a Class 1 office through which certain Class 2 office calls are routed.

(5) The code "CDO" is used.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HARDWARE
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FOR THE
TELEPHONE LINE
OVERHEAD
Cable Suspension Material • Wire Holders
Pole Seats and Balconies • Clevises • Braces
Drive Hooks • Messenger Dead Ends
Extension Arms • Long Span Material
Pins • Clamps • Guards • Stubbing Bands
Guy Protectors • Guy Clamps • Pole Struts
Clips • Straps • Hangers • Carriage Bolts
Rings • Transposition Brkts. • Eye Bolts
Pole, Corner and House Brkts. • Guy Hooks
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UNDERGROUND
Cable Racks • Manhole Ladders and Steps
Pulling-in Irons • Expanding Anchors
Cable Shields • Screw Steelwing Anchors
Anchor Rods • Grounding Wire Clamps
Ground Rods
"HANG THE LOAD ON HUBBARD HARDWARE"
HUBBARD AND COMPANY
PITTSBURGH . . . OAKLAND CALIFORNIA . . . CHICAGO
MANUFACTURERS OF A COMPLETE LINE OF HARDWARE
FOR TELEPHONE REQUIREMENTS SINCE 1900

SPECIFY
DIAMOND
MULTI-SIZE SCREW ANCHORS

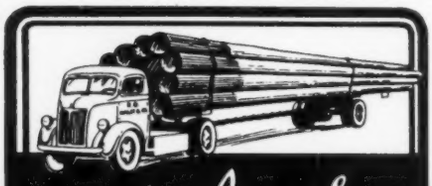
Diamond Multi-Size Screw Anchors are designed to accommodate in one anchor several diameters of wood screws. The purpose is to reduce the number of anchors required to accommodate all sizes of screws. They are made in several lengths, covering the majority of uses.

FASTER INSTALLATION
MORE ECONOMICAL
COMPLETELY RUSTPROOF

*Send for Catalogue T-149*

DIAMOND PRODUCTS
ARE AVAILABLE
THROUGH YOUR JOBBER

DIAMOND EXPANSION
BOLT CO., INC.
GARWOOD, NEW JERSEY



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Minneapolis
and Haley, Idaho

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TOLEDO 4, OHIO

Active in chamber of commerce activities, Mr. McCanne is a past president of the chamber's Sales Executives Club, past director of the National Sales Executives, Inc., and a member of the general manager's group of the Industrial Management Council.

Mr. McCanne has also participated widely in trade associations. He is a past member of the advertising committee of the Radio Manufacturers Association, past chairman of the amplifier and sound equipment division of RMA, past chairman of the school equipment committee of RMA, and former co-chairman of the joint RMA-U.S. Office of Education committee on school audio equipment specifications. He was vice president of the Rochester Electrical Association in 1941.

He is a senior member of the Institute of Radio Engineers, member of the Independent Telephone Pioneer Association, and the Rochester Engineering Society.

In civic affairs he is a director of the chamber of commerce, vice president of the Rochester Civic Music Association, director of the YMCA, secretary of the Rochester Rehabilitation Center, and president of the board of Allendale School.

V V

## Graybar Electric Splits Southwestern District

Effective Jan. 1, the southwestern district of the Graybar Electric Co., with headquarters at Dallas, was divided into two separate units with offices of the newly created district, to be called the Gulf Coast district, at Houston, A. H. Nicoll, president, announced recently.

Both districts will continue to operate under the supervision of District Manager G. T. Marchmont. J. E. Fontaine, present Houston manager, has been made assistant district manager in charge of the new district. A. W. Palin, present operating manager at Houston, has been made district operating manager for Houston and its branches and R. B. Hamilton, present Houston credit manager, will be the new district's credit manager.

District Appliance Sales Manager V. A. Elmblad, Dallas, has been appointed assistant district manager of the Dallas district reporting to Mr. Marchmont. District Operating Manager N. M. White and District Credit Manager W. F. Gay of the Dallas district will continue to serve in their present capacities.

The sub-warehouse at Austin, Tex., will be made a regular branch with E. L. Copeland, sales manager in charge.

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THE MAC GILLIS & GIBBS CO.
1615 E. Royall Place, Milwaukee 2, Wis.
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Northern White and Western Red Cedar
Creosote and Penta Treatments

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*Fit 3/8" to 1 1/4" Pipe*
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